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THE

DENTAL

CIRCULAR AND EXAMINER.

EDITED BY

B. WOOD, M.D.,

DENTIST.

BOSTON MEDICAL
FEB 1 1895
LIBRARY ASS'N

VOLUME I.

ALBANY.
PRINTED BY J. MUNSELL, 78 STATE STREET.
1865.

CATALOGUED
FEB 1 1895
E. H. B.

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BOSTON MEDICAL
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THE DENTAL CIRCULAR AND EXAMINER.

Vol. I.] ALBANY, N. Y., JANUARY, 1865. [No. 1.

MATERIALS FOR FILLING TEETH.*

From the earliest periods down to within a quarter of a century, *lead* and *gold* appear to have been the principal substances employed for filling teeth. It is said the Chinese, centuries ago, possessed a method, now lost, of filling teeth with a substance resembling enamel in color and texture, but of this we know too little to speak.

Gold, from its costliness, and its being difficult of introduction into dental cavities in the condition in which it was employed in the rude stage of our art, was probably little used by the ancients. Still we have evidence that it was used.

Lead, however, was generally resorted to, and, if we include the earliest tooth-filling, has perhaps been more extensively used for this purpose than any other substance. John Hunter, who wrote in 1778, mentions only lead and gold as plugging materials; and, indeed, up to about 1830, these appear to have constituted the chief resources of the profession in this particular. F. Maury, in his work, published in 1833, records that, of all the substances then employed for the purpose, lead was the one most generally used. About that time tin foil and other preparations began to take its place.

Lead was mechanically well adapted for this use. Soft, pliant, and adhesive, it was easy of introduction, and it retained its hold. The objections raised to it were, that it was soft and easily wore away, that it blackened immediately and readily oxidized in the mouth. From its softness and oxidability and consequent liability to be introduced into the stomach from the abrasion of plugs, and considering the poisonous qualities ascribed to it when taken internally in any quantity, we would naturally look for graver objections on the part of its opponents, at a time when it was so universally in use. Yet, although pernicious effects from amalgams, while yet comparatively but little employed, were revealed to, and particularly pointed out, by observers, I do not find that they ascribe any constitutional disturbance to lead fillings. This, however, will appear less remarkable, in view of the universal use, at the present day, of water from lead pipes and reservoirs with apparent impunity.

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* A paper read before the Brooklyn Dental Association, November 21st, 1862, and published in the Philadelphia *Dental Cosmos*, for Feb., 1863. Some notes and references are here omitted, being chiefly explanatory.

But lead gave way to tin, a decided improvement upon it, being harder and less oxidable in the mouth. Besides, it is comparatively innocuous, so that, in any quantity that we can conceive of it as liable to pass into the stomach from this source, it need not occasion apprehension. Of this metal and of gold, in the forms now used, we will speak hereafter.

I wish to present the subject somewhat chronologically, stopping for comment as we proceed.

About this time were introduced the amalgam pastes, for some while held a secret, but consisting for the most part of silver filings mixed with mercury. Their advantages were obvious. They could be readily applied and smoothed off, and soon became hard and firm. Objection followed that they blackened, contracted, were porous, and absorbed the buccal fluids, and that the mercury discolored the teeth and sometimes affected deleteriously the general system.

Newton's well-known fusible alloy of lead, bismuth, and tin, now came into use, under the name of "Darcet's metal." Fox (Natural History and Diseases of the Teeth, 1833) thus speaks of this: "A new method of stopping the teeth has been recommended to me by some chemical gentleman, which promises to be very successful in all cases where the tooth is not tender, and the caries is situated in the centre." Having given its formula, he adds: "The cavity in the tooth, being wiped perfectly dry, may be stopped by pouring a drop of this metal into it, when it instantly becomes solid; as, in cooling, it strikes into all the irregularities of the carious part, it is a most perfect mode of filling it up."

But I will not stop to make citations. The opinions of authors for and against it may be seen in a paper published by me in the September number of the *Dental Cosmos*, and the *Dental Register*. It was at one time (about 1835 to 1845) more extensively used for filling teeth, particularly in France, than any other substance.

The objections were, that it required too high a heat, which gave pain, and sometimes induced dental periostitis; that it was difficult of introduction, and only applicable to crown cavities in the lower teeth. It is alleged, by later writers, that it suffered contraction in cooling; but the evidence was fallacious, for the metal really expands, the result observed being due to imperfect filling, the melted metal, in consequence of its spheroidal tendency, receding from the walls of the cavity before being solidified, or solidifying before reaching the extreme margin from which it was supposed to have shrunken.

The metal fluidifies and congeals at nearly the same temperature. According to my measurements, it is perfectly fluid at 200° Fahrenheit, and perfectly congealed at 198°. For manipulation, it must have required a heat of 212° to leave margin for introduction, and probably the heat was generally higher.

Its formula was modified by the addition of mercury to lower the melting point, but without obviating the other objections, while it entailed a new one. The presence of mercury was observed to involve the same results as when used in the form of the amalgam pastes. Moreover, in this form, owing to elimination of the volatile metal, there probably was contraction.

It does not appear from objectors that injury to the tooth (except what in some cases resulted from the heat) or to the constitution was observed from the use of the alloy when not amalgamated. But the objections were such that dentists fell back to the soft amalgams, deriving a new argument for them in the fact of the addition of mercury to Darcet's metal by those who had before opposed them on the ground of containing mercury.

It may be of interest to trace the history of dental amalgams from this to the present time. They have been the subject of various modifications, (in name if not in substance,) but generally kept a secret, the form most constantly employed consisting of silver *coin* in filings mixed with mercury.

In 1849, Dr. Evans, of Paris, announced a new amalgam, composed of "chemically pure tin with a small quantity of cadmium," and mixed with mercury. It excited some attention owing to the promise it gave as an improvement upon the ordinary form. It appears it did not blacken the teeth as usual, but that some contraction took place, and that yellow stains were, upon subsequent examination, sometimes observed at the bottom of the cavities. It did not prove, on the whole, to possess any peculiar advantage, and never came much in use in this country.

In 1852, William Robertson, Birmingham, England, proposed an alloy of one part of gold, three parts of silver, and two of tin, the metals to be pure. It was recommended in particular as requiring a comparatively small quantity of mercury. The filings do not unite very readily with mercury, but the mixture *sets* soon, forming a hard compound, though quite brittle. I do not know that it possesses any special advantage, or that it has ever been used to any extent.

In 1855, Dr. E. Townsend, of Philadelphia, proposed an alloy consisting of four parts silver and five parts of tin, to be made up into a stiff cake, with mercury, the metals to be pure. He described his mode of preparing and using it in a sanguine letter in the *Dental News Letter*, October, 1855. The mode of preparing it he ascribed to Dr. William H. Hunter, of Cincinnati. He afterward repudiated all amalgams. This is the form now most generally used.

We often hear "pure silver" spoken of as the basis of an amalgam; but I doubt if *pure silver* will form an amalgam that will harden and remain adherent. At least some kind of admixture would seem to be necessary for the best result. A little copper is sufficient for this, the amount contained in coin; also the addition of tin, and of some other metals.

Of the kinds of amalgam examined in the laboratory, I have never used any in the teeth except the old form, as made from silver coin, and Dr. Townsend's formula, and these in cases "few and far between." Of the two I prefer the latter.

We now dismiss the "amalgam question," and take up the cement preparations.

But to come back to our chronological order, and not to lose sight of gold too long:—In 1850 was brought forth "Sponge Gold"—of earthy look and earthy mould—and which, from its incipient appearance and subsequent development, we may call the "larva condition" of this new production; this passed quietly into the aurelian state of Crystal Gold, where, maturing awhile, it presently expanded into the full-grown, golden-winged Adhesive Foil.

Some time about 1850, Hill's Stopping came on the tapis. It was patented in 1849. It consists, according to the specification, of gutta-percha combined, when softened by heat, with two parts of quicklime and one part each of powdered quartz and feldspar, to which other substances may be added for coloring, etc. The first preparation was "nothing to brag," but latterly it has been much improved, and is in fact a valuable acquisition for temporary stoppings. In its present form it is quite hard, has much tenacity, and will generally outwear the "bone filling" cement, although prone to roughen and discolor on the surface. It requires quite a high heat to soften it sufficiently, and some force to pack it well; so that it is not so well suited for sealing up cavities having exposed nerves as some softer cements. For this purpose a compound of three parts gutta-percha, one of elemi, and one of sandarac, is better. It attaches itself to any point adhesively and still may be trimmed with the hot plugger, or a sharp instrument, without being drawn out of the cavity, to which gutta-percha alone, from its tenacity, is liable. For a more adhesive cement, where the cavity is shallow, or where the crown is broken away to the nerve and there is no retaining point, a mixture of from three to four parts of gutta-percha with one of elemi, melted together, is the best I know of. It will cling to the smooth surface of a tooth, and does not object much to the presence of moisture; but the precise quantity must be applied at once, as it clings to the instrument in the effort to trim it.

I may say that I do not regard Dr. Hill's formula as the best, and presume he does not adhere strictly to it at present. Silex, lime, and earthy powders stiffen the gutta-percha, it is true, and impair its tenacity so that it may be trimed more readily, but they render it friable and more easy to be worn away. The best admixture that I have found is asbestos, finely ground and sifted. This bestows all the advantages derived from the graunlar powders, while its fine fibres serve to bind the mass compactly.

We next come to oxy-chloride of zinc, popularly known as "bone-filling." This, for awhile, was held as a secret, under the names of osteoplasty, artificial dentine, crystal cement, etc.,* as most of the preparations in market still are as far as can be.

A definite formula was submitted before the American Dental Convention, August, 1859, and subsequently published in the dental journals. Having subjected different samples purchased, and others prepared by myself, to various tests in the laboratory, in order to satisfy my own judgment as to their qualities and virtues, I finally published the results in July, 1860. The indications of those experiments have, I think, been verified in practice. It is certainly a little remarkable, that those at least who deprecate the use of the base metals because of their *liability* to "oxidize" in the mouth, and who protest against the application of acids to the teeth, should employ the *oxide* of a base metal in conjunction with an acid† as a mixture for filling teeth, a substance, too, that from its destructible nature can subserve but a transient use. But the phenomenon finds some explanation in the facility with which the mixture can be introduced, the importunity of the community for cheap methods and material, and the unsatisfactory results of operations (performed unskillfully) with foil, whether tin or gold.

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* I am aware of the objection that may be raised to the use of this term. Chloride of zinc in view of certain properties, is known as an escharotic or caustic, and in view of its constitution, as a *salt*. But the word acid was more comprehensive of my meaning in this connection. * * * The production in reality would appear to be due to the action of hydrochloric acid, whether as applied in its ordinary form, or as evolved from the chloride of zinc or other metal, being simply a compound of that acid with oxide of zinc — chlorine, the efficient agent operating in the hydrous form.

† Os artificial, Osteo-Dentine, Bone Filling, Quartz Filling, Glassofic cement, terms which are anything but significant of the nature of the compound, and at direct variance with the principles of scientific nomenclature.

Gold, of all the substances yet used or proposed for filling, is unquestionably the best in view of its durability and beauty. In the form now prepared it can be welded upon itself, compactly and securely, in a cavity, or built out therefrom so as to restore the defective tooth to its original form, leaving nothing to be desired except its natural color. A perfect gold filling is the *ne plus ultra* for the salvation of a tooth. It must be conceded, however, that gold, if imperfectly secured, is no better for the preservation of the tooth than an imperfect filling of a baser metal, and infinitely worse than a perfect one.

There are some extrinsic objections or obstacles connected with the employment of gold, which we are compelled to look squarely in the face. These chiefly affect the patient. They appertain to the expense of material, and the greater expence involved in the skill and time required in its proficient using. It is but supercilious to deride the popular search after "cheaper" substitutes. The fitting up with gold, in thorough and efficient style, of the teeth of many a poor family, would cost their year's income, and leave them not a crumb to masticate on golden plugs,

In protracted operations, the tediousness to the patient is no slight consideration, and doubtless deters many, or determines them in favor of more expeditiously manipulated material.

Tin, being much softer than gold, can be used in some cases to better advantage; though, as a rule, where it can be used sucessfully, gold can be as well, if not better. But it costs comparatively nothing, keeps tolerably clean in the mouth, and though liable to tarnish and wear away, may be regarded innocuous for this purpose. As to economy, estimating time and skill, little is gained by its use—merely the difference in cost. But as tin wears readily, especially on the grinding surface, and will in process of time require replacing, it is likely in the end to be not less expensive than gold, even at "half price."

We now come to the latest material proposed for filling teeth, the Plastic Metallic Filling, which, I suppose, you will expect me to say something about. This was not offered as a rival to gold, but as a substitute for the baser metals in use. It is presumed the profession have by this time become acquainted with it.

The advantages of this over Darcet's fusible alloy are, that it softens at least fifty degrees lower, at a temperature not liable to harm the tooth or surrounding parts, and that, owing to its plasticity, it is so manageable it may be introduced into any cavity, whatever its form or position; over amalgam, that it contains no mercury, and does not blacken the dentine, nor afford just ground for apprehension as to its effect upon the system, and that it may be built out from the cavity in any form, and be subjected to immediate use in mastication. It is certainly not more liable to oxidation, under similar conditions, than tin, and being at least two degrees harder,* will greatly outwear it, being, indeed, more invulnerable to attrition than gold plugs not perfectly condensed. Perfect fillings can be made with it in much less time, while it can be employed in cases where tin and gold cannot. It can, moreover, be used for pivoting, and for engrafting partial crowns to fragments of teeth, without the necessity of excising the tooth and removing the nerve. In this respect alone it will prove of incalculable value, saving many nerves otherwise doomed to destruction.

---

* Reference is here made to the scale of hardness embodied in a paper on alloys, published in the *Journal of the Franklin Institute* for March, 1862. (See also *Dental Register of the West*, vol. xvi. p. 215.) In this scale lead, the softest metal, re-

The objections are, that it belongs to the class of base metals, that it is susceptible to the action of the stronger acids, that, like tin, it is liable to tarnish, that it requires heat in its application, which excites apprehensions on the part of patients, and that its successful manipulation involves the exercise of a degree of skill and discretion which many do not naturally possess, or will not take the pains to acquire.

A NEW METHOD OF GRAFTING CROWNS UPON THF ROOTS OF TEETH.

BY PROF. E. COLLINS, D. D. S.

From the Dental Register, August, 1864.

After fitting the tooth in the ordinary manner, drill out the fang two-thirds of its length with the largest size fang drill; then take a remer and enlarge the opening to near the outer margin of the fang. The enlargement should not extend up into the fang only about one-half the length of the canal made by the first drill. Cleanse out all foreign matter well and dry perfectly. Introduce a small pledget of lint, saturated with creosote, into the extremity of the canal. This done fill the root soldly with "Wood's Metal." Select a plain rubber tooth of the class, size and shade the case may require, fit it nicely upon the fang, and retain in position with wax. Cover the lateral face of the artificial crown, and collateral teeth with good plaster; when the plaster is sufficiently set, remove and let it dry for a few moments, then replace. Having removed all moisture from the previous filling, and parts adjacent, fill, with the above metal, in between the crown and root, the narrow spaces first; also pack well around the roots. Then build on metal until the lingual face is made similar in form to the natural crown. Remove plaster and finish. This method of attaching crowns to roots has the advantage over all others in the following particulars: The crown never requires resetting; the root is preserved from decay, and the tooth is as easily kept clean as the natural organs, hence no unpleasant effluvia arises therefrom, as is the case where teeth are inserted in the ordinary way. Try it and report progress.

Richmond, Ind.

Gold or Silver Test.—Slightly wet the metal to be tested, and gently wet it with lunar caustic. If gold or silver, the mark will be faint; but if an inferior metal, it will be quite black. Jewelers who purchase old gold often use this test.—*Scientific American.*

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presents the lowest class. Tin, being one degree harder, typifies class 2. The metal above spoken of ranks in class 4, or between 4 and 4-5, being in hardness nearly midway betwen tin and pure gold in solid bars.

MODE OF OPERATING WITH THE PLASTIC METALLIC FILLING.

BY HENRY S. CHASE, M. D., DENTIST.

INDEPENDENCE, IOWA, July 5th, 1864.

To B. WOOD, M.D.: Having now used your "Alloy" for one year, I will give you my experience with it. I am well satisfied with it in every respect. This, and gold, constituted ninety-nine one hundredths of my fillings. For grinding or cutting surfaces I prefer No. 2, as it seems to *wear* better. For lateral and difficult cavities, No. 3. Where the "pulp" has been removed, I fill that cavity with tin foil and then use the alloy over that. If the pulp is nearly exposed by excavation I place a pledget of cotton-wool at the bottom of the cavity as a non-conductor. Cavities below the gum, I pack with tin foil near the edge to prevent moisture affecting the filling at this point. The cavity must be *absolutely dry* to make a good filling of the alloy. If this cannot be secured some other metal had better be substituted. In my hands no filling of the alloy has failed in a single instance. In two or three cases I have extracted teeth filled with it, whose pulps had been destroyed. This would have been the result even if gold had been used. I find the need of *smaller* instruments than you make. An instrument like "No. 4,"* as small as an excavator, would be very useful. I use a small hatchet excavator in lateral cavities of incisors, frequently. It needs a bulb to retain heat.

Although the pain is sometimes severe, it subsides immediately on bathing the tooth in cold water. The metal retains its color in the mouth quite as well as tin foil. I find none turned black. I have not found a patient yet dissatisfied with it. For cavities on grinding surfaces I consider it superior to tin-foil on account of its greater hardness; resisting the *wear* of mastication much better than tin. Pulp cavities should not be filled with it, unless the root canals are plugged with tin foil or "Hill's Stop." Where the cavity is very deep and hard to get at I sometimes fill with Town. Amal., partly full, and finish with the "alloy." Never, however, where the pulp is alive. I had, this morning, the following:

Case: Mr. L., cavity in posterior surface of right upper 2d molar; pulp and ramifications removed; root canals plugged with cotton moistened with creosote; cavity very large, preventing the proper use of "Wood's" instruments in distant parts; filled half full with T. Amal.,† and finished with Wood's Alloy.

Respectfully yours,
HENRY S. CHASE.

---

* [Nos. 9 and 10 are for small cavities. They can be easily filed to a small point if desired. It is well to have a duplicate of these, reducing the blades of one pair to ½ or ⅓ the usual size.

† Tin foil will be found preferable as a base to fill on in such cases.—W.]

Practical thinkers and observers will concede the justness of the following common sense view in regard to

CHEAP MATERIAL FOR FILLING TEETH.

BY DR. C. G. DAVIS.

NEW BEDFORD, MASS., July 1st, 1864.

DR. B. WOOD: MY DEAR SIR: Some time since I received a Circular from you in relation to your Plastic Metallic Filling, and I find recommendations from men who do not adopt an inferior article because they cannot use gold successfully. And, therefore, I am constrained to believe it is of value. I hope it is all that is claimed for it, for as yet all substitutes for gold and all inferior materials are almost worthless.

The Amalgams have done some good, but on the whole I think the harm has more than balanced it, as it has been used by poor operators where gold was demanded. Then, the Amalgams are never reliable: fill a dozen cavities in the same mouth, equally well, and a part may do very well, while the rest within a year will be drawn away from the walls and caries taken place. As for the "bone" filling, it is wholly unreliable. Wherever there is much acid secretions it will dissolve out in from three to six months. What we want then, is a filling that is easily adapted to cavities of every description, both large and small, that will not absorb secretions or permit their being taken up between it (the filling) and the walls of the tooth. This kind of filling, if it does not corrode, is all we want. A perfectly executed gold filling will do this, and this is why it is better than anything else; but not one dentist in twenty put in perfect plugs of gold, as a rule.

If your Filling then, will not shrink or swell in the cavity so as to change the relation of the filling to the wall of the cavity, thereby making a fissure between them, and if it will not corrode, or if it does corrode slightly on the surface, and can be used without pain* to the patient, then it is all that is demanded.

Whatever operators may say who live in large cities and have a practice among the rich, to the contrary, there is a large class of people for whom a cheap dental stopping is absolutely necessary. People who depend upon their daily manual labor will not pay to preserve their teeth, what a good operator is obliged to ask if he uses gold. A permanent cheap material for preserving the teeth is demanded, and if yours will do what I have just mentioned, there is no reason why it is not as good as gold. I have used it to fill one tooth and was pleased with it in that case. * *

Yours, &c.,
C. G. DAVIS.

---

* [The pain in cases of highly sensitive dentine is sometimes quite severe for the moment, particularly if the metal is applied suddenly, although by no means as severe as that which attends the removal of the decay of the same tooth preparatory to filling. Patients frequently remark the difference with surprise, saying that the introduction of the metal, from which they shrank with apprehension, "was *nothing*," compared with the excavating of the cavity. The sensation produced by the heat in introducing the filling in such cases is similar to that occasioned by a jet of cold water, or the first introduction of gold or tin foil at a lower temperature than that of the tooth—and it may be obviated in a great degree by first syringing with warm water, or applying a gutta percha stopping or other cement, softened by heat, thus gradually inuring the irritable dentine to the temperature required.—W.]

REPRODUCTION OF THE ALVEOLUS.

Is the alveolus susceptible of restoration by treatment? A few years ago this question would have been authoratively answered in the negative. Now it may be answered in the affirmative.

As bearing upon the subject, it affords pleasure to be able to quote the following editorial from the *Dental Register of the West*—and in doing so, to hail the Journal which has been the first, so far as I am aware, to give acknowledgement where it belongs.

SUCCESSFUL TREATMENT OF AGGRAVATED DISEASE.

We not long since had the pleasure of examining some cases of disease of the mouth, in course of treatment, and some restored to health, by Dr. Atkinson of New York that far exceeded our comprehension of any body's attainments in that direction. That alveolar abscess, in its various phases, and even in very aggravated forms, is treated successfully by many in the profession we were well aware; but that such progress had been made we did not know, or conceive, till we had the demonstration.

That one who by disease, had been rendered a loathsome, fetid, putrifying carcass, with the disease focalized in the oral cavity, could be purified and vivified, so as again to enter society, and live a life of comfort and happiness, is not according to common understanding.

Yet, we saw several cases in which this has been accomplished, Diseased bony tissue rendered healthy, and even lost portions, of considerable extent, reproduced, giving the original form and symmetry to the parts; and soft parts restored to a healthy condition, even when verging on the point of dissolution, and reproduced when lost. Now although this is almost beyond belief, yet it is accomplished by such means as are available to all, who have the inclination and ability to make them theirs.

These attainments are gained by a long, thorough and deep study and investigation into the laws of life, health and disease, and an understanding of those agents, instrumentalities and circumstances, that influence and modify these conditions. Attainments of this kind are the results of arduous labor and investigations of almost a lifetime, such as most persons do not care to enter upon.

To Dr. A. certainly belongs the high regard, and real gratitude of our profession, for that which he has accomplished, for most assuredly it has not come spontaneously. T.

Having during a year's residence in the city of N. York (1862 and '63) enjoyed the opportunity of witnessing the treatment of aggravated cases at the hands of the operator referred to, and the process of cure, week after week, it is a source of peculiar gratification to be able to endorse the above remarks. What particularly enlisted my interest in the cases, was to see in several instances portions of the alveolus, which had undergone absorption or exfoliation, gradually restored under treatment to the normal form and substance. In instances examined from time to time, the progress of growth could be distinctly traced and its limit determined, whether by examination with a probe through the place of lesion, or by pressure upon the integuments with the finger; the osseous structure presenting body and resistance to pressure so far as reproduced, while the yet unfilled chasm remained flaccid and yielding, until finally bridged by the new formation beneath. In one case where the teeth remained, but were quite loose, the roots apparently only adherent to the fleshy parts, new alveolar cells appeared to be gradually formed around them, holding them quite firmly *in situ*. In the treatment of alveolar abscess the operator's procedure was, to me at least, as novel as it proved eminently successful, and I believe I had not been inattentive in regard to the usual methods adopted and proposed.

I am aware that these things have been derided, and even treated with ribaldry, *as pretension*, by prominent members of the profession. What was said at the American Dental Convention at Saratoga Aug., 1863, may be recurred to; as also what at the American Dental Association at its late meeting at Niagara. In the former case, the speaker made out that he had performed, twenty years before, all that had really been performed since; but did not answer the interrogotory, why the peculiar mode of treatment had not before been communicated to the profession. The other speaker, contesting the priority of discovery in respect to a physiological point, had himself some years ago recognized the fact in question—by independent discovery,—but afterwards upon further study found that other eminent physiologists had been in advance of him, &c. But he did not adduce any proof.

Relating as they do, directly to the question in regard to the susceptibility of repair and restoration of the alveolus, I will here reproduce the following remarks made by me some years ago while connected editorially with the Journal from which they are taken.

REPAIR AND REPRODUCTION IN THE MAXILLARY BONES.

The capacity of the living organism which enables it to maintain the integrity of its parts, and to make reparation for the injury or loss its tissues may sustain through accident or disease, constitutes an exceeding interesting feature in physiology. To see this power manifest itself in the process of simple nutrition, or at work in the repair of lesions, cementing divided parts, filling up chasms, and making restoration for entire loss of substance in the soft textures—or busy upon dense, osseous structure, welding together the shattered ends of fractured bone, building up breaches, and reconstructing portions of the bony fabric that have been destroyed and removed—enlists our curiosity and challenges our admiration. There is nothing better calculated to impress the mind with a sense of the energy of this recuperative power, than instances of reproduction of a considerable portion of bone throughout its entire thickness, where nature, "steady to her purpose," flags not, wearies not, rests not, but toils on, until she accomplishes her end—the renewal of the lost portion, or rather, the *creation* of a new part, after the pattern of the old, bearing its characters and endowed with its functions.

The regeneration of bone has received a large share of the attention of physiologists and surgeons; more especially in view of the question as to what is the true or essential formative organ in the process. In regard to this question there now seems to be a pretty general concurrence of opinion, although some difference exists upon certain points. We believe it is generally conceded that the living portion of the old bone, and each of its membranes, bear a part in the formation of the new; that *periosteal structure* is the principal, or most efficient agent; but, that in absence of the true periosteum, the surrounding soft structures may assume its character and function. It would be interesting to trace the steps of this process, with the varying phenomena described by observers as attending it under different conditions, but our present object was merely to speak of some of its *results* as manifested in the maxillary bones.

That the maxillary bones possess the capacity of repair and reprodution, might be readily inferred from their character as compared with the other bones, in which, (the short bones excepted,) this power so frequently manifests itself. When fractured, their reunion, (which is but a modified action of the same power,) is accomplished with facility—in the lower jaw with remarkable facility, considering the almost impossibility of keeping it in a state of repose. The motions of the lower jaw, however, interfere greatly with the work of reparation, and, without doubt, often frustrate it when it had else gone on to completion; especially in cases of entire loss of the jaw, or of a considerable segment of it, where the malposition of the soft parts, added to the action of the muscles, would seem to present a most formidable obstacle to anything like perfect reproduction.

It appears, furthermore, that certain diseases or agencies, producing necrosis in the maxillary bones, destroy the periosteum, or impair its bone-producing function, while at the same time implicating the surrounding textures so as to prevent their assuming periosteal characters and action. But these exceptions and conditions are but similar to what might occur with respect to other bones, nor do they indicate any want of formative capacity. And that this capacity is resident in the bones of the jaw, and may here manifest itself as well as in parts more favorably situated, is placed beyond doubt by the cases which have, from time to time, come under the notice of observers.*

The alveolar process is not ordinarily reproduced in cases of complete exfoliation. Its margins, also, are subject to waste from pressure and exposure, without renewal. Indeed, this structure appears designed to answer a purpose merely subsidiary to that of the teeth—growing with them and wasting away when they are removed—and in most cases when *it* is lost, *they* are lost with it, so that there is no need for reproduction. As an articulating medium between the teeth and the jaw-bone, it is similar in *function* to articular cartilage, the loss of which is not restored, but compensated for by the development of a dense, fibrous texture, or a peculiar osseous formation taking place upon the bone.

But the alveolus bears the characters of true bone, and is in reality nothing more or less than the dental portion of the maxillary bone, differing from this mainly in answering a specific purpose. Where a tooth has been extracted, the margins of the alveoli are absorbed and levelled off, without renewal, but at the same time, an ossific deposit or formation is going on at the bottom; so that, while there is waste on the one hand, there is generation on the other, the loss without being compensated for by an acquisition within—a process similar to that which removes the projections, fills up the depressions, and rounds off the jagged stump of a bone. Reparation of alveolar fracture, whether limited or extending through the denser bone, goes on in the usual way, the union being as speedy and perfect as elsewhere. In cases of third dentition, when the new teeth are found firmly implanted, we must suppose, with Hunter, that the alveolus was produced synchronously with the development of the teeth. That regeneration does not ordinarily occur when portions of the alveolus exfoliate, through the teeth be unaffected by it, is readily accounted for in the fact that there is seldom enough integument, either for the protection of the part, or for the production of a formative organ; the *nidus* does not exist; the soft parts being often wholly removed by violence, sloughing or retraction, from the very spot where the new formation should take place. But, covered by healthy integument, (supposing the teeth remain in *situ*,) there is reason to believe that repair would take place here as well as in any other part of the bone. * * * * "—*Southern Journal of the Medical and Physical Sciences, Sept.* 1853.

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* We have, however, recently seen it stated that the maxilla do not possess the reproducing power. As this statement comes from one whose prominence, both as a Teacher and Author, in our specialty, claims attention for his remarks, we will quote them in full, although some of them would appear to be based upon a misapprehension of the authorities referred to.

"*Necrosis of the Superior and Inferior Maxilla.*—There is a very curious fact that appears to remain unnoticed as far as our observation extends, viz.: that in all of the bones of the trunk, limbs, &c., suffering under caries and necrosis, nature makes a constant effort to recuperate by granulation and fresh deposition, but with the maxilla there is no evidence of their possessing this power in the slightest degree, partaking, as it were, of the character of the teeth in this respect." * * * *Am. Journal of Dental Science*, *October*, 1852.

Professor Harris also states that "in the alveoli the loss of substance by necrosis and exfoliation is never replaced, while in other bones it is soon replaced by the formation of new bone."—(*Principles and Practice of Dental Surgery.*) So that according to the views of this author, the maxillary bones are incapable of regeneration either in whole or in part.—*Jour. Med. and Ph. Sciences*, *Sept.* 1853.

[It is due to quote here a correction made in a subsequent number of the Journal.]

The American Journal of Dental Science for October says, that the editorial quoted in our last from that Journal, for Oct., 1852, with reference to Reproduction of the Maxillary bones, "was written by the junior editor, and only expressed his own individual views, as derived from the general tenor of the authorities which he had, at that time, read on the subject." It adds: "The senior editor has long been of the opinion, that the power of regeneration is, under certain circumstances and conditions of the surrounding structures, exercised in the maxillary as well as in other bones of the body."—*Ibid. November*, 1853.

It is gratifying to know that this has now been demonstrated, and a restoration of portions of the alveolus actually induced by a proper course of treatment, at the hands of a member of the dental profession.

PROFESSIONAL ADVANCEMENT AND ELEVATION.

A paper read before the American Dental Convention, held at Detroit, August, 1864.*

In whatever way effected, whether by the reciprocation of opinions, the communication of facts, the exhibition and examination of improvements, or the discussion of modes of practice, the great *object* of this Convention is the *advancement and elevation of the Profession.* I propose some remarks in relation to the means of promoting this object.

Professional advancement is accomplished by individual and associate effort—it may be promoted orally, or through the medium of our literature, by the productions of our art, those material embodiments of ideas, and by the light and stimulus of example.

Facts and principles form the foundation; on these and by these Art builds and adorns. These are prime objects of concern. Their acquisition ennobles the recipient. The discovery and unfolding of them confer enduring honor. Let those who aspire after distinction, as well as the greatest usefulness, strive to stand on this basis. While the charms of eloquence and rhetoric may win but temporary plaudits,—facts and principles will surely live forever.

All advancement springs from individual thought and work—incited it may be by social or other influenee. The great point is, then, to arouse and encourage individuals—to inspire the dormant to action, and the active to emulation. As that which contributes to advancement in our speciality, whether in theory or practice, new ideas, a higher skill, increased resources, improved methods and facilities, originate mostly with *dentists*, we have to look chiefly to dentists for instruction and incentive.

Among our compeers are many examples worthy of emulation. Some are working on in comparative obscurity, while others have made their mark. Mingling with all, we observe various classes in different spheres of activity. Here, perhaps, one whose whole soul is in his *operations*:—earnest, sincere and determined, *excelsior* his motto, the works of his hands, in elegance and utility, typify the man. There another, whose labors are more exclusively of the mind, stored with large acquirements. Again another possessing to a greater or less extent the qualifications of both.

To exemplify more at full: There we may find a philosophic friend, of genial heart and restless thought—whose mind is imbued with an earnestness which augurs great things. He studies nature with profound attention. He aims' to seize hold of the great principles which are the mainsprings of her operations. He stores his mind wlth *both* knowledge and wisdom;—for,

> "Knowledge and Wisdom far from being one
> Have oft times no connection. Knowledge dwells
> In heads replete with thoughts of other men;
> Wisdom in minds attentive to their own."

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* Differently reported in dental journals as a "communication on Mechanical Dentistry," as a paper setting forth "claims for the recognition of inventors," &c.

I may observe here, that as the reference to dental publications appeared to give such marked displeasure to certain parties, (although unnecessarily, I think, in most cases) and not being disposed to aggravate ill feeling, nor to expunge what seemed to me just and called for, I concluded not to submit the paper for publication. But perceiving that its general purport as well as particular passages have been subject to much misunderstanding or misconstruction in professional circles, I feel it due to lay the whole before the profession as it is. And I do it in this form and place that the offence of its appearing may not be visited upon any other than the author.

As to the reference to dental journals, if there was a single one which afforded ground for a word of warning, the remarks were not uncalled for, and they ought not to have been taken exception to by any to which they did not apply.

What his explorations in the arcana of science reveal, his intellect assimilates, and makes part of himself, whence springs a new birth of ideas. He finds himself in a new world, partly of his own making—a world of strange beauty—and, with a soul for companionship, wrestles to bring his former compeers to the new-found Garden of Eden. We may be disposed to account him an enthusiast, and such in a certain point of view he may be. But his arm is a lever of power, operating on strong fulcrum at the right place, for the elevation of the profession. He puts Atlantean shoulders to the work and lifts from the bottom. Men of this class are needed.

There are another class who are not useless—those who examine details with earnestness and fidelity; who persistently interrogate nature and art, pursuing them close through all their intricate windings; who cannot rest where there is doubt, nor be satisfied with unproved inference and speculation: who are content to plod their obscure way through hidden mines, though weary and uninviting, until their farthest recesses yield up the reluctant treasures.

There are still another class of men who are steadily contributing, day by day, to the advancement and elevation of the profession, simply, as it would seem, by the work of their hands. A man of this class may not display any extraordinary scientific acquirements, nor evince a relish for elaborate research. His *forte* consists chiefly in *execution*. What he undertakes he performs well. It must not leave his hands until it is *finished* in all its parts, and in such a way as to fulfil its purposes. He cannot tolerate a thing that is merely passable. He does not esteem it good until it is excellent. This excellence is the beau ideal to which all his energy and toil and ambition are directed. He may not be working upon any definite scientific principles, but he has studied well, perhaps unconscious to himself, the principles of art, the principles of proportion, symmetry, adaptation; and his operations tell how faithfully he has applied them. His mind pervades his work. Whether upon the living organs, or an appliance to supply their loss; whether in an ordinary filling or denture, or in a complicated invention, the design, contrivance, adjustment and beauty of which transcend our conceptions of possibility, the results personify the man. We admire his works. We admire him through his works. We call it the work of his hands. It is the work of his *mind*.

> "Mind, Mind alone! bear witness earth and heaven!
> The living fountains in itself contains
> Of beautious and sublime. Here hand in hand,
> Sit paramount the Graces. Here enthroned,
> Celestial Venus, with divinest airs
> Invites the soul to never fading joy."

There are others that might be classified, who, each in his peculiar sphere, are doing much by individual effort, for the general advancement, either in contributing something to the facilities and resources of the profession or in giving character and stimulus by their good works and example. Some make progress by rapid and adventurous strides, others advance by sure and steadfast steps. All will meet on common elevation in the end.

As individuals are the streams to swell the tide of associate effort, and as the force and volume of the latter can only be in proportion to the former, associations must react upon individuals, facilitating the old and opening up new sources of supply. It is thus chiefly that societies become useful. They are indeed means of distribution, but contribute nothing to the common store except so far as they start and accelerate individual activity. And how is this to be done? Undoubtedly by presenting the requisite incentives. Surely not, as is sometimes seen, by ignoring or resisting new suggestions and improvements. Surely not by an overweening spirit which claims to have originated every new thing or method proposed, or, if this cannot be made out, operates to its disparagement. How often do we see men of prominence, perhaps of distinction, seeking, with a zeal worthy of a better cause, first to deride, then to belittle, then to "damn with faint praise," and perhaps, at the last coming out with claims as originators of the very thing they had sought to ignore.

If a suggestion, process or principle unfolded is worth attempting to appropriate on the part of men of consequence, it is certainly worthy of due credit to the more humble originator. And this award is no slight stimulant not only to the party interested but to others.

I have heard it urged by good speakers, on former occasions, that this Convention ought not to take cognizance of mere mechanical improvements, &c., or, if tolerated, they ought to be placed outside. But the productions of mechanism are as much the manifestation of mental conceptions as good speaking, and sometimes more useful. It is sometimes objected that attention bestowed upon such might involve the risk of conferring "temporary notoriety" upon the underserving; but I do not suppose that "temporary notoriety" is an object of so much desire as to excite serious jealousy! and moreover the sooner a case is faithfully examined the sooner is it disposed of.

It is said in way of justification of indifference in regard to new contributions to our resources, that there are so many new things proposed which prove valueless. There are a great many old things under new names, but examination will show a remarkable dearth of things substantially new. And as to their value, it is very easy to determine by a rigid and impartial inquest, such as any truly competent dentist, or at least any respectable society is capable of making. The trouble is we are often more prone to speculate, "guess" and *talk* than to examine. I have seen elaborate discussions as to the advantages of a process or method, which in closing up, the parties had never tried. The same time spent in an examination would have resulted to more profit.

I propose a remedy; and that this Convention take the initiative. I propose that the Convention constitute a Committee on Improvements, of competent and earnest men, proven friends of progress, to investigate fully the nature and merits of whatever is introduced for professional use; and to report thereon upon its merits.

In this way mere pretenders would be duly exposed, and on the other hand the malign influence of those who clog progress be frustrated. By this means there will be mutual protection as between originators and recipients, producers and consumers. By this, the presentation of what is specious will be discountenanced, and real improvements be encouraged for the benefit of all.

There is another means of professional elevation and advancement of which I intended to speak, but can only refer to—viz., our periodical literature. Conducted with ability and honesty, with a view to the high interests of the profession, our periodicals will prove beyond value. If perverted to unscrupulous ends, or committed to hands unequal to the high calling, they will inevitably tend not only to retard progress but to degrade the profession; for the outside world judge the profession chiefly by those who control its literature.

It is a remarkable fact, that since the discontinuance of the *American Journal of Dental Science*, we in the East, have been indebted for our literature solely to the enterprise of manufacturers and dealers in dental materials, in the shape of publications gotten up as vehicles of advertisement for their respective establishments.* These in the main have been conducted with commendable spirit, filling the void far better than might have been anticipated. There is some danger, however, that, falling into the hands of wealth and power, studious chiefly to monopolize trade, select only in the choice of subservient editors, and become ambitious, perhaps, to control not only the patronage but the literature of the profession, they might prove the instruments of *subjugation* rather than elevation. At least we throw ourselves in this matter at the feet of those who can have little interest in regard to the profession except as patrons. I do not intend any disrespect to dental manufacturers and dealers, who, as a class, will compare in intelligence and honor with any other—and have done much to enlighten and elevate our own profession, for which they are entitled to many thanks. But they themselves have remarked the dilemma to which I refer. Do the *medical profession* look to druggists, or establishments which sell surgical instruments and appliances, for *their* literature? Surely we ought to think of doing in this respect for ourselves.

In view of these things I would respectfully suggest that this Convention appoint a Committee upon Periodical Literature, to examine into the character and efficiency of these means of advancement, and to consider the propriety of establishing a Dental Journal under the auspices of this Convention, or some other, under the sole and direct supervision of the dental profession, wholly independent of outside control and influences.*

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* The only publication which may be regarded as an exception to this remark is a small quarterly, started within the past year; but this, from its limited space, is surely unequal to the need of the profession, although it is to be hoped that it will eventually be so enlarged as to better supply this need.

There is one means of advancement, a very ready one, which it is astonishing to see so little improved, and that is social intercourse among dentists. Such interviews naturally become professional—turning upon the various questions connected with the art. We can hardly have a familiar talk of five minutes with any practitioner without eliciting some valuable hint or suggestion. Dentists are usually ready to communicate their ideas and modes of practice—sometimes, perhaps, a little egotistical, but never mind that—there will be something to *learn*. We learn almost everything from fellow practitioners, directly or indirectly. All improvements in dentistry originate with dentists or from their suggestions. Yet as a class we are noted for resorting to any other source of information in preference. Do men in other avocations resort only to third parties who can have no practical knowledge in regard to the subject of inquiry ?

A new era has dawned. Dental societies are springing up in every locality. They have the approbation of the great outside world, who have long marked our suicidal isolation. Here dentists meet fraternally; here interchange ideas; here learn to value and esteem each other, and to respect ourselves as belonging to a living profession. By these agencies and influences we hope to become emancipated, harmonized, knit together; each man a learner, worker, teacher; each working independently in his appropriate sphere, but deriving light encouragement, strength from his associates; all working onward in harmonious concord of purpose towards the highest position of usefulness, and honor.

NEW YORK SOCIETY OF DENTAL SURGEONS.

The following Schedule speaks this enterprise of the Society, and furnishes an example which is worthy of imitation by all. The essayists are among the first dentists in the country:

The undersigned Committee of the New York Society of Dental Surgeons present the following list of subjects upon which essays will be read at the regular meetings of said Society, with names of essayists, and date of presentation:—

November 9th, 1864.—Anatomy of the Mouth. *Thomas Rowe.*
November 23d, 1864.—Origin and formation of Teeth. *Wm. H. Atkinson.*
December 7th, 1864.—Pathology of the Teeth. *A. C. Castle.*
December 21st, 1864.—Physiology of the Teeth. *C. P. Fitch.*
January 4th, 1865.—Periodontitis. *A. L. Northrop,*
January 18th, 1865.—First and Second Dentition. *W. C, Horne.*
February 1st, 1865.—Artificial Dentures. *J. M. Crowell, John Allen, J. C. Robins.*
February 15th, 1865.—Duties of private Dental Preceptors. *C. A. Marvin.*
March 1st, 1865.—Diseases of the Gums. *J. S. Latimer.*
March 15th, 1865.—Relation of Dentistry to General Medicine. *Wm. H. Atkinson, A. C. Castle, C. P, Fitch.*
March 29th, 1865.—Hypertrophy. *Wm. H. Atkinson.*
April 12th, 1865.—Cleft Palate. *N. W. Kingsley.*
April 26th, 1865.—Dental Etiquette. *W. B. Hurd.*
May 10th, 1865.—Diseases of Antrum. *J. S. Latimer.*
May 24th, 1865.—Filling teeth with the Mallet. *G. A. Mills.*
June 7th, 1865.—Irregularities of the Teeth—their causes and treatment. *W. H. Allen.*
June 21st, 1865.—Dental Instruments. *Frank Abbott.*
July 5th, 1865.—Anæsthesia and Anæsthetics. *W. C. Horne.*
July 19th, 1865.—Dental Hygiene. *C. E. Francis.*

C. P. FITCH,
WM. H. ATKINSON, } *Committee.*
J. M. CROWELL.

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* That there is a good journal in the West free from such influences, is no argument against this proposition, and only suggests a different locality.

NEW YORK INSTITUTE OF DENTAL SCIENCE AND ART.

The FIRST ANNOUNCEMENT of this Institution has been received, but unaccompanied with any particulars beyond what are contained therein. It is, however, sufficiently explicit for what it purports.

"To meet, in some degree, the demand for dental instruction long felt in this city, the Society of Dental Surgeons of the City of New York and the *Brooklyn* Dental Association determined to secure a full course of dental tuition for the fall and winter of 1864 and '65.

"In pursuance of this object the following corps of instructors have been duly elected, who have severally signified their willingness to undertake the arduous work:

W. H. ATKINSON. M.D., D.D.S., Institutes of Dental Science and Art.
C. P. FITCH, M.D., Anatomy and Physiology.
J. S. LATIMER, D.D.S., Operative Dentistry.
JOHN M. CROWELL, Artificial Dentures and Appliances.
JOHN ALLEN, D.D.S., Chemistry and Metallurgy.

The Term will begin December 1st, 1864, and continue sixteen weeks. There will be an average of three lectures or demonstrations daily; which, together with the General and Special Clinics and Demonstrations, will fully occupy the time of the pupil.

Those wishing to avail themselves of the advantages of this School will call on, or address, W. H. ATKINSON, Dean, No. 109 Ninth Street, (West of Broadway,) New York City."

The Introductory Address was to have been delivered December 1st, 1864, at 8 P. M., by the Dean, at Clinton Hall, Astor Place.

The gentlemen engaged in this laudable undertaking are well qualified as Instructors. Dr. Atkinson undoubtedly ranks as the foremost SURGEON in our specialty, with a profound and comprehensive understanding of its Principles. In Physiological Anatomy, Dr. Fitch has been a zealous and indefatigable student and will feel himself at home. In Operative Dentistry Dr. Latimer cannot but fill his duties with distinguished credit. We judge him by his works. Dr. John Allen is well known as the Inventor and Patentee of the most magnificent improvement that has ever been made to mechanical dentistry; other things may have been more generally useful; but Allen's Continuous-Gum process stands ahead in point of splendid elegance. The other gentleman I am not personally acquainted with, but have heard of him as a man of genius, and doubt not the ability with which he will fill his post.

But was it not a mistake not to have made the Institute a regular College of Dental Surgery, with the name and endowments of such, competent to confer Degrees, &c.? It would have required no more labor of the Faculty, and would have afforded stronger inducement and incentive to students. Students spending the time and labor to qualify themselves naturally want their Credentials. As a COLLEGE, with perhaps two or three other names from the cities of New York and Brooklyn added to the faculty, it could not but have taken a front rank. However, it might have conflicted somewhat with the Philadelphia Schools from its close proximity to them. The latter institutions, we understand, are in their usual flourishing condition; the Pennsylvania College of Dental Surgery having about fifty students and the Philadelphia Dental College some twelve or fifteen.

As to the Ohio College of Dental Surgery, we have not heard, but it *deserves* as large a class as any: there is none whose earnest and untiring labors merit more from the profession than this.

There is no question but that the great State of New York, in conjunction with the New England States, ought to have a good Dental College—a college with a live faculty, up to the times in theory and practice. One that would appropriate, demonstrate and utilize, for the benefit of its students, all the improvements of the day, at whatever cost. A college of comprehensive views as to dental qualification, that would stimulate its classes to reach after still higher attainments than it might be able to afford, and, rather than underrate the advantages and honors of medical schools, would duly commend them. A college not afflicted nor afflicting its students with petty and narrow prejudices in regard to "Patents," etc., but affording them full information and instruction in regard to all things which it is to their interest to know.

As a location for a State Dental College, ALBANY, the Capital, affords, perhaps, from its geographical position, with respect to the State and New England, and other considerations, as many advantages as any city that could be named. Besides, it would be too remote from the Philadelphia schools to come in serious competition with them, while, by awakening the attention of the profession and the community it might redound to the advantage of all. It is to be hoped that the profession in this section will take the suggestion into consideration.

CORRESPONDENCE FROM THE PROFESSION.

RELATING TO THE PLASTIC METALLIC FILLING.

In the "Dental Circular" for May 1864, I took the liberty to give the views of a number of professional gentlemen in regard to the Plastic Metallic Filling, as a sample of the current opinion so far as I had heard expressed at the time. This ought, perhaps, to suffice; but it occurred that it might be of interest to know something of the general expression after still further use, selecting from those who speak from the longest experience. The views given are the off-hand expressions of letters containing orders for material, and doubtless the authors may be surprised at finding them in print. But I do not apprehend that any will object to letting their professional brethren know what they say. It would have afforded pleasure to have heard from them, in detail, as to their modes of operating with the material; but I trust we shall hear more in full from the profession in this particular hereafter.

DR. C. E. FRANCIS, New York, writes, June 24, 1864: In regard to the "Filling:" It is just the thing every dentist needs. Now that I have tried it fairly, and given it a thorough test, I feel it to be my duty to recommend it to all my brother dentists. It ranks second on the list of "materials for filling teeth." For children's teeth it is admirable—vastly superior to tin foil or amalgam. For building up broken-down molars to their original shape, it is invaluable, and to those who have ever used it, almost indispensable. It is indeed a "blessing to humanity," and we bless it and hear it blessed almost daily in our office. Many dilapidated teeth are now restored and rendered useful, when their possessors are unable to pay for mammoth gold plugs. With a little experience it is easily manipulated.

Where the pulp of the tooth is nearly exposed, we cover the floor of the cavity with a layer of Boom's stopping, which is a poor conductor of heat.

Truly yours,

C. E. FRANCIS.

Dr. C. E. Latimer, New York, June 18, 1864:

I like the Filling very much where gold cannot be used because too expensive, or for other reasons. It is a "convenient article to have in the house," and new uses to which it may be applied are suggested to my mind every day. For fastening metalilc pivots, or repairing vulcanite plates, where teeth are broken off, it is just what we need.

Dr. C. B. Myers, Hillsboro, Illinois, Aug. 9, 1864:

Dr. B. Wood: Dear Sir: Enclosed find four dollars, for which send your No. 3 plastic filling. I am much pleased with it. I use nothing but gold and it for filling.

Dr. Joshua Perkins, Danielsonville Ct., August 16, 1864:

I regard your "Plastic Metallic Filling" as great an improvement, or discovery, in filling teeth. as Vulcanite is for a base for artificial dentures.

I have used your Filling in a number of difficult and important cases, and in every instance it more than met my expectations. It gives me pleasure to add my testimony in favor of its great value. Your license system is liberal, and ought not to be objected to by any one.

Dr. L. H. Rice, Johnstown, N. Y., Sept. 8, 1864:

I would here say as regards that *valuable material*, it is universally acknowledged by those who have had teeth filled with it, to be far *superior* to other fillings that have been made in the same teeth before. I have introduced it in cavities where it would have been very difficult indeed to make a *solid* gold filling.

Dr. Geo. W. Melotte, Potsdam, N. Y., Oct. 13, 1864:

I am very much pleased with the Metal Filling; should not know how to "keep house" without it.

Dr. C. B. Porter, Ann Arbor, Oct. 13th, 1864:

I am so well pleased with it, I want it always at hand. I am using it almost altogether for filling where my patients are not able to pay for gold. I also find it *very* serviceable for mending rubber work. Where a tooth is broken off, it is easily replaced with your valuable improvement.

Dr. G. A. Bowman, Canton, N. Y., Oct. 17, 1864:

It has superceded all other compounds for economical plugs *almost entirely* in my practice.

Dr. H. Weston, Berlin, Wis., Oct. 1864:

I should have written to tell you how much I like your Filling. I assure you it has become indispensible to me.

Dr. C. A. Marvin, Brooklyn, N. Y., Nov. 8, 1864:

I have just learned that your "metal" cannot be found at the depot of S. S. White, and I am out; used the last or nearly the last this blessed day. I want some more. * * * *

As to the Filling:—I find myself sustained by my experience in the opinion that with *careful manipulation* Wood's Metal is second only to gold, and only to gold when gold is perfect.

Dr. J. C. Robins, Jersey City, Nov. 21st, 1864:

I have used some $18 worth, and could always buy it at White's, until quite lately. It seems they do not intend to keep the article on account of some restrictions in the sale of it by you to unlicensed persons.* Please send me the article by mail as soon as possible. I am entirely out, and can hardly do without it.

Dr. E. Collins, Richmond, Ind., Nov. 29th, 1864:

I have used your Filling almost from the time of its introduction, and am able to decide upon its merits. I esteem it as second only to gold for filling, and in some cases equal if not superior to the latter metal.

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* S. S. White was relieved of the Agency over six months ago.

DR. L. W. ALBEE, So. Charlestown, N. H., Dec. 10, 1864:

I have used the Metal you sent me in cavities unsuitable for good gold fillings, and find no serious trouble in its manipulation, neither have I observed any lasting bad effects from the heat even when applied to very sensitive and nearly exposed nerves; also I have succeeded well in repairing rubber jobs.

DR. W. W. SHEFFIELD, New London, Dec. 14th, 1864:

Please send as soon as possible by express (C. O. D.) 6 ingots of your Plastic Metallic Filling. 1 have used it ever since I saw you at Saratoga. It has become a fixture with me; think it second only to gold, and in some cases even superior. Have obtained $10 for a single filling.

To the foregoing we add the following remarks of Prof. Barker on materials for filling teeth, from the proceedings of the Pennsylvania Association of Dental Surgeons, as reported by James Truman, D. D. S., in the *Dental Register*.

"Dr. Barker was of the opinion that no one material could be used exclusively; but considered that gold foil was superior to any other in the great majority of cases. Special cases will present, when some plastic material must be used or the teeth removed. In some cases when the cavity cannot be kept dry, tin foil filling can be made that will answer the purpose better than anything else. In others where there is an absence of a considerable portion of the crown, or there are weak walls, good fillings can be made of Wood's Plastic Metallic Filling or Amalgam. The first named material he liked better and better the more he used it and became proficient in manipulating it. He had recently examined several fillings introduced some months since which looked as perfect as when first filled."

OPPOSITION TO THE "PATENT."

The following is from a letter from an agent for whose frankness, as well as good will for me pecuniarily, I feel under great obligations:

"I intend to do according to instructions, though I *dont* think you are taking the best course to make money out of it for you. I was getting up quite a trade for it, and my opinion is, it will subside under this patent treatment; but just as you say. Yours &c. ———

P. S. My agent says; Every dentist in his travels so far, since I notified him of the change, say they wont purchase under the patent.—It wont be long before there will be forty kinds of filling that will take the place of yours; and you, nor I, or any body else can find out who makes it."

Here are some facts which ought to be blazoned upon the sky, so that every one who needs dental aid and counsel may see. They will not purchase *under the patent.* They will not respect the Right of Property in the premises. No one will pretend that they could get the *same* article or one possessing its requisites, or something *better*, on fairer or easier terms. But there will be forty kinds and, no doubt, ten times forty kinds of fillings gotten up clandestinely and surreptitiously, by irresponsible parties whom no one can find out; and yet these will professional gentlemen stealthily purchase and palm off upon their confiding patients simply to *evade the patent*, in purposed violation of legal and moral RIGHT.

Here are the fruits of the principles inculcated by those who resist patents on "ethical" grounds.

Now all I have to say is—for I know this feeling is not general among men in the profession who are every way entitled to professional trust—but, addressing right-minded men; *Learn to use the Filling*; use it with conscientious regard to the best results for your patients. Do not regard the clamor or derision of prejudice or malice. Test, and appropriate to its proper use *every* improvement, determined to attain to proficiency in its use. The field is open—especially in respect to what is "patented:"—You will not need any *Exclusive Right.* And in a few years, when you shall have attained the mastery, and the great public, to whom we must all appeal at last, shall know the true state of things, you will have won a status which will be worth all the cost. It will not be long before the line of demarcation between the living and the "dead body" will be apparent to all, and the profession be disencumbered of those who clog its progress. I look to the patent system as an important means of regeneration, in this age of fertile invention.

The pecuniary benefit to me is nothing in these premises. The result to me as an individual is of no moment. Whether the Filling sells or not amounts to little—it sells faster than purchasers learn to use it, which is so much too fast. I fight a battle of Principle, and hope to "ride the storm."

For the satisfaction of any who cannot well comprehend that a sane man would be so impolitic as to pursue a course adverse to his direct interest, I will here express my faith in the doctrine that *adherence to principle is the best policy* in the long run.

PROTECTION AGAINST INVENTIONS.

We find the following advertisement in the columns of the November number of the "Dental Cosmos," and freely give it a place, hoping the parties will not take it amiss if we as freely give our opinion in regard to its general bearing. We omit all names, believing that upon due consideration the gentlemen will recognize their error, and appreciate the omission.

We are truly glad our New England brethren are beginning to meet together *fraternally*, for whatever object, for, according to reports, there was great need of it. The present movement was inaugurated in Boston and appears as yet to be confined altogether to the New England States.

DENTAL CIRCULAR.

Sir :—It is generally known that Dental Surgeons in the United States have for many years past been subjected to very many annoyances by claimants for various patents covering *parts* in the mechanical branch of our profession.

We have submitted to this state of things until forbearance ceases to be a virtue. We now propose to form a "Dental Protective Union," embracing all the Dentists of the United States, who shall pay the sum of ten dollars into the treasury, for a fund, to test and resist this *leeching process*, so long continued with impunity.

It is a practical insurance against individual loss, from the persistence of the numerous patentees whose claims are being thrust upon us, as we believe, most unjustly. It is quite apparent to any one that, individually, we cannot contend against the numerous claims presented, as the expense in litigation would be too heavy. But, by combining our interests, we can effectually resist all claims not well founded in law.

An organization is in process of formation, having for its government a Constitution and By-Laws, with active men in every state for its officers, who shall have the oversight of all matters pertaining to the interests of the profession as above indicated.

We ask your immediate and hearty co-operation with fellow-members of the profession, by sending your name and residence, accompanied by funds, to Dr.

———, temporary Treasurer of the United States Dental Protective Union, Boston, Mass., who will receipt you for the same.

It seems needless to appeal to the high and honorable motives, which should characterize our action in a matter of such individual, as well as collective interest. The funds collected will be invested so as to pay interest to the advantage of the Union. ———————, *Committee.*

BOSTON, September 29th, 1864.

BOSTON, September 29th, 1864.

WHEREAS, it is expedient that a dental Protective Union be formed, including all Dental Surgeons in the United States of America, for the purpose of mutual protection; therefore

Resolved, That we do hereby unite in associate capacity for mutual protection, and do agree to pay the sums annexed to our names, (which shall go towards admission fee,) and to comply with the Rules, Constitution, and By-Laws which shall emanate from said Union for its regulation and government.

As the above specifies "patents covering *parts* in the mechanical branch" of dentistry it would seem to aim more directly at the rubber patents—perhaps also at Robert's vulcanizer. In a preceding number of the publication from which it is copied, are published a series of Resolutions of the "Massachusetts Dental Association," specifying certain letters patent for using India-rubber and other gums for artificial plates; and in a subsequent number resolutions by the "Connecticut Dental Association" directed against hard rubber patents.

The following Resolution adopted by the New Haven Dental Society, (*Dental Cosmos* for November,) is more general.

"*Resolved,* That it is inexpedient for us to purchase the right to use any dental patent, the validity of which has not been definitely determined, and that it is eminently desirable that the action of the dentists of the State in reference to this matter should be unanimous and harmonious."

And the following by the "Merrimack Dental Association," New Hampshire, goes still further.

"*Resolved,* That it is the duty of every dental practitioner to patronize no man or firm, who is connected in any manner with companies or individuals, who are attempting unjustly to claim of them remuneration for so-called patents." (*Dental Cosmos* for Dec.)

It will be seen that the foregoing relate professedly to "claims *not well founded* in *law*;" to "any *dental* patent the *validity of which has not been definitely determined*;" to parties "attempting *unjustly* to claim remuneration for *so called patents*," or rather, to any "man or firm who is connected in any manner with" such parties.

Now all this may seem very well on the face of it, and doubtless members of societies influenced to such action intended well. But the question arises, who is to pronounce as to the *injustice* of said claims, at least before they "have been definitely determined" by law? that practitioners may know what "man" or "firm," it is their "duty" to "patronize" or not? Some of our dental dealers may be "connected" as agents for the sale of certain patented articles, which another dealer, who has not the agency, pronounces to be of the class referred to: if we believe the representations of the latter, however unjust or malicious, we must patronize *him*, must we? But suppose certain dealers choose to keep for sale what we have pronounced upon—keep them for the accommodation of others in the profession who think differently—becomes it our "duty" to *spot them* and bestow all "patronage" upon another, who has, perhaps, influenced our judgment in the case?—It is to be feared that such "*resolves*" will subject our New England brethren to the suspicion of having been made the unwitting instruments of interested parties.

But they are to resist "all claims not *well founded* in law," and not purchase the right to use, "any dental patent, the validity of which has not been *definitely settled.*" They are to litigate it first as long as there is a pin to hang a doubt upon. That is a grand scheme — for worrying down inventors of limited means in behalf of wealthy competitors, free of cost to the latter. Can it be possible that our New England friends are unconsciously lending themselves as cats paws to scratch chestnuts out of the hot ashes for somebody else to eat!

The design of the patent laws is to encourage invention by affording protection against the encroachment and monopoly of wealth.

To be valid a patent must be *new* and *useful.* Every qualified dentist ought to be able to judge of this in respect to a *dental patent.* If it is not *new* he can use it with impunity. If it is not useful he don't want it. If it is both new and useful, and he wants it, he ought to compensate the inventor; and it would be morally unjust to force him into litigation, in the hope of developing some technical flaw by which to escape the *legal* obligation. If the *cost* is the objection, (and that appears from the above to be the one and sole difficulty,) then it really appertains to the *invention* instead of the patent. All inventions *cost,* corresponding to the cost of production and introduction, and it will be found that this is little in favor of a thing not patented over one that is. If a license is paid in advance, it only affords the inventor the means for manufacturing his article at proportionally less cost, and as a general thing, he will find it to his interest to sell as low as he can, finding thereby larger compensation in larger sales.

These remarks are predicated upon general principles, and upon the assumption that the profession are disposed to be honorable and just. To disregard the right of property in patents, whether on "professional" grounds or any other, is to strike at the right of property in everything else—to strike at all principles of ethics,—to overturn the order of society and give free license to robbery, theft, and every species of spoliation. With a certain class it is "professional" to gamble, with another to steal horses, &c., each having their peculiar plea and justification.

That there are impositions and abuses in patents no one doubts, but immeasurably less than are practiced with things not patented. There may be intolerance on the part of certain patentees towards the profession, but whether that has not been greatly exasperated by intolerance on the part of the profession towards patentees is the question. We think most of the confusion and irritation may be traced to the machinations of selfish men, anxious to appropriate all inventions and improvements in the profession to their own behoof, operating upon the spirit of *professional antagonism* found to exist, whereby dentists are disposed to dispute the merit and value of any thing produced or used by each other.

We speak in general, without reference to the particular patent referred to or any other, and because the action of some of the societies is general in bearing.

The profession, no doubt, sincerely believe they have ground of complaint against the Hard Rubber Company; and doubtless the Hard Rubber Company as sincerely believe they have good ground for complaint against the profession. It is a remarkable fact, however, that those in the profession who *have paid for* *licences* do not, as a general thing, complain about the *tax*, but rather that the Company should permit *others* to use the patent *without paying*, while those who have been using it without paying a cent, and without being prosecuted for infringement, are the very ones who are loudest in expostulations about the onerous burthens imposed.

If a patent shows from fact and history that it is pretentious and fraudulent, let it be resisted, as a matter of course, but as a general thing, such frauds cannot pass the patent office. Therefore, we think the best thing as a rule would be for both parties to compromise in a spirit of mutual recognition of rights and duties.

If the profession in their associate bodies were to give earnest expression of a disposition to deal honestly and justly in respect to the interest and *reputation* of owners of real and valid patents, we think contention and irritation on this vexed question would soon cease.

THE DISPOSITION TO BE MADE OF INVENTORS IN THE DENTAL PROFESSION.

THE HAMANS ERECTING GALLOWS FOR THE MORDECAIS.

We have seen in the preceding article, from our quotations from the "Dental Cosmos," the action of certain Dental Societies of the East, with reference to mutual protection against patents, or more remotely, against *inventions* that are expensive,—to which, indeed, the *argument* as directly applies, and indirectly chiefly applies, since patents are the result of inventions, and the system of patenting the most efficient means for their development. We do not mean to imply that the Societies intended this; but the indiscriminate nature of their action was to this effect. Nevertheless, the societies, it appears, did not go far enough to suit the "Cosmos"—the organ and advertising medium of the most powerful and extensive establishment for the manufacture and sale of dental material on the Continent,—the Proprietor himself a Patentee, but wielding a powerful influence against the patents of others, especially those *obtained and held by dentists.* We quote the following from the December number, written by the editor of the "Review Department."

DENTAL PATENTS AND PROTECTIVE UNIONS.

[After expressing alarm at the increase of patents, by which the writer assumes "the energies and usefulness of the profession will be hampered so as to materially interfere with its progressive development as a *science* and an *art*"—the article proceeds;]

"That any person who makes an improvement in mechanics is entitled to take out a patent and derive all the pecuniary benefit that may accrue from the sale of the same, is a matter settled beyond a question of doubt by the laws of the land; and it matters not how powerful or numerous the combinations may be against a patentee who has a claim which is well founded, the courts will be compelled, and should decide the case in favor of the patentee, according to law; but where the claim has a false foundation, the proof of that would be sufficient to render it null and void.

Admitting, therefore, that every one, professional or non-professional, has a perfect right to take out a patent, and that the custom and commerce of the world sanction and justify the act, there is, aside from this general view of the case, a *professional* or *ethical* side to the question, so far as the taking out of patents on the part of practitioners of dentistry is concerned, which, for the past few years, seems to have been entirely overlooked.

* * * * *

> "*Protective unions* may be well enough in their way, and, as a *temporary means* of resisting unjust encroachments or taxation on the part of unprincipled men, whether calling themselves dentists or not; but the proper way to strike at the root of the evil is for the various dental societies in the country to take a *firm* and *decided* stand against any *active member* taking out a patent for anything relating to the practice of dentistry, either mechanical or operative, and that *no practitioner* of *dentistry* shall be eligible to *active, corresponding,* or *honorary membership* who shall be engaged in such transactions. * * * *
>
> "While thus advocating the strict observance of ethical rules on the part of professional men, I do not wish to be understood as applying these principles to non-professional men; they are outside of the profession, and whatever interest some of them may feel in its success, they cannot be considered as coming under the operation of or to be governed by rules which should control those who are engaged as practitioners."

This last is a very fitting saving clause; but which, instead of being an earnest of the writer's "advancing these views, without *fear* or *favor*," as he professes, betrays symptoms of *both* "fear" and "favor."

For a fuller comprehension, we quote the following from the New York Dental Journal, for May, 1864, a Journal which opposes patents on general grounds. Referring to infringers upon Robert's Vulcanizer:—

> "Take, for example, Mr. S. S. White, who we believe owns several patents: one purchased of certain parties in this city, and which, if we are rightly informed, may be had cheap for cash at the present juncture; another, for a double headed pin for rubber work. We would ask Mr. White how he would like his patents infringed upon? On principle, he would probably object to it; but he nevertheless proposes to fight the Vulcanizer patent, because the article is a source of large profit to him. Is this consistency?"

(The person referred to is no less than the Proprietor of the Dental Cosmos, who selects whomsoever he will to its editorship, and has power to remove.)

Now take in this connection the fact, that, while the Proprietor of the Cosmos is "outside of the profession," he is also an "*honorary* member" of several dental societies, and it will serve to make the above perfectly transparent. The writer has saved us the trouble of italicizing. Societies must take a "stand against any *active member* taking out a patent &c.," but *not* against an *honorary* member; "and that *no practitioner of dentistry* shall be eligible to *active, corresponding* or *honorary membership* who shall be engaged in such transactions;" but one who is not a practitioner may be eligible to *honorary* membership, and as *honorary* member may have free scope unquestioned. It is beautiful! True, as the writer says, "there are a few interested parties who may oppose such views; but the large body of liberal-minded men in the profession will, no doubt, recognise and fully indorse the justness and correctness of the principles enunciated."!

But how is this going to hinder the increase of patents? Will the profession be less "hampered" by patents obained by men outside of the profession and *honorary* members of societies than if obtained by dentists? All a dentist has to do to preserve *caste* is to place his invention in the hands of *an outsider.* Is that part of the programme? Suppose societies ostracize every man of inventive genius, will that suppress invention, or prevent men from securing patents for what is of value? Will honorable dentists be any more disposed to "freely give" their inventions if *forced to it under ban?* which would rob them even of the *merit* of liberality?

Patents do not appear to "hamper" the progress of *general* science and art; but are recognized both as means and indications of progress.

As to the "broad, liberal and comprehensive axiom," which the writer quotes as specially professional, we have already remarked in our *Dental Circular* for May, p. 25. He reiterates the axiom; does he meet the argument? Does he back his precept by example, in the bestowment of knowledge to students at the "Philadelphia Dental College" without the *money-fee*? Receives he not a *full equivalent?*

And why "freely give" inventions? And to whom? Do *dentists* care to manufacture them? Could they do it to advantage or profit to themselves? And if they must be "freely given" for the behoof of dealers, to manufacture and sell, is it likely the latter could or would feel greater responsibility, or manufacture on better terms than the *inventors?*

Reference is made to medical ethics in regard to patent medicines. The medical profession *act* with propriety and consistency with reference to these so-called "patents:" but when applied to instruments and surgical appliances and real patents their practice jars with their precepts. The word "patent" applied to secret nostrums is a misnomer. "Patent medicines" are treated even in law as synonymous with occult and secret preparations. To call them patents is as much a perversion as to call oxichloride of zinc "Osteo-Dentine." How the term came to be misapplied is obvious. Filing the formulæ under caveat in the secret archives, and retaining them there indefinitely, ostensibly with the view of making them patent, they came to be called patents in prospective. Or, represented as "new and useful" specifics, when no proof could be adduced to the contrary, they became legally patents, by evasion of the intent of the law, without possessing the characteristics. The profession properly repudiate both them and their makers. With real patents, things possessing the qualities of "novelty and utility," and made open or patent to the public, such as instruments and surgical appliances and chemical compositions, it is quite a different thing. These they honor in the *using;* to whatever extent some may have been disposed to push precept beyond common sense principles or the possibility of practice. And if in practice they honor the thing produced, by the using of it, they cannot consistently dishonor, in precept, the producer. But mere *arbitrary ethics* cannot and should not shackle a free mind nor a progressive age, however respectable the source. That the medical profession is not infallible, but that its pride and assumption and *selfishness* have clogged its own progress in the general march of the arts and sciences, is matter of history and of present observation.

But do those who decry dental patents imitate the example they hold up? When driven from the shallow resorts of sophistry to squarely confront recognized principles, they put in a *plea* for *secrecy*. And they back this in practice, by the using of compounds, the ingredients of which they do not know, under deceptive names expressly framed to conceal the real composition and nature of the compounds.

So much for *professional ethics* in the consistency of *adherence to a purpose* rather than to principle.

The writer conceives that the "*professional* or *ethical* side of the question" upon which he pivots his lever for hurling inventors from the profession, has been "entirely overlooked." Does he not recollect that somebody of a similar turn of mind, some years ago, and upon the same issue, advocated the ostracism of the "whole *tribe*"? (to quote the classic substantive employed). This, I believe, ocurred during the tempest raised by the advent of Dr. John Allen's invention, which gave some alarm that it might overturn all other styles of dentures and seriously hamper the regular manufacture of artificial teeth.

Let "*unjust encroachments*" be resisted in the most effectual way possible. Let "unprincipled men, whether calling themselves dentists or not," be debarred from dental societies; but let this be done on the ground and proof of injustice and want of principle. And let those who are guilty of indiscriminate imputations in respect to a class, which may be liable to misapplication to the whole or any one of the number, be held amenable for the injustice done.

The writer can not be unaware that untrue and injurious representations have been made through the publication with which he is connected, which *have never been retracted*, although fully exposed, and yet he has never raised one word of expostulation, or censure of the guilty party, nor uttered one syllable as a public journalists to right the wrong; while his *prudential silence* was liable to the construction of acquiescence or even complicity. If charity ought to begin at home, why not the sterner virtue, justice. Might he not find some one near at his elbow whom he could specifically signify as ineligible to membership, while his mind is being exercised in that direction?

But why suppress invention in Dental Societies? Why arraign dentists before the Profession, who secure to themselves their just right to their productions? Why is the Cosmos so specially zealous on the subject? Does any one believe that had inventors placed their property at the control of its Proprietor, and sought the favor of his editors with sufficient deference, things would not have been different—that men who conceive it no discredit to be in the *employ* of a Patentee, who is not a dentist, would have thought it so to meet Dentists, who are Patentees, on terms of equality in our Societies?

And what has the Cosmos concern for envy? Have not the parties received a full share of patronage and honor at the hands of the Profession? and been promoted to place and power? Why still unhappy?

"After these things did king Ahasuerus promote Haman the son of Hamedatha the Agagite, and advanced him, and set his seat above all the princes that were with him.

And all the king's servants, that were in the king's gates bowed and reverenced Haman: for the king had so commanded concerning him; but Mordecai bowed not, nor did him reverence.

* * * * * * * * *

And when Haman saw that Mordecai bowed not, nor did him reverence, then was Haman full of wrath.

And he thought scorn to lay hands on Mordecai *alone*. * * *

And Haman said unto king Ahasuerus, There is a certain *people* scattered and dispersed among the people in all the *provinces of thy kingdom*; and their laws are diverse from all people, *neither keep they the king's laws*, therefore it is not for the king's profit to suffer them.

If it please the king let it be written that they may be destroyed."

"If men when Wrong beats down the Right,
Would strike together and restore it;
If Right made Might
In every fight,
The world would be the better for it."

ADVERTISING IN DENTAL JOURNALS.

Certain remarks made by me in a Communication in one of the Journals, having, in consequence of a misconstruction, been the occasion of some offence to parties not referred to, I feel constrained to set myself right in the matter. The remarks were as follows:—

> "A publisher having a third of his journal set apart expressly for advertising what he has for sale, while a goodly portion of the other two thirds is, of necessity, tributary thereto, may properly adopt rules for his own government, which would prove quite inexpedient if applied to correspondents."
> (*Dental Register*, March 1864, p. 114).

It will be seen that the stricture implied in these remarks had direct reference to the adoption of certain rules, rather than to advertising. The publisher referred to in them, quoting only the first clause, but omitting that involving the point at issue, replied with this explanation;

> "With reference to the remark made by Dr. Wood, "A publisher having a third of his journal set apart expressly for advertising what he has for sale, etc.," that this is in accordance with the usual custom, and besides is no injustice to subscribers, as the number of pages of reading matter has in each volume been larger than was promised in the prospectus."—(*Dental Cosmos*, May '64, p. 578).

This converted the remark into a censure upon all the journals as to a common custom, while parrying the stricture in regard to a rule or usage which had not been adopted by any except the one specifically designated. It appears that it actually came to be so accepted by individual members of the profession, if not also by some of the journals, as evinced by some demonstration to repel the supposed injustice. Still, I would not have thought it worth while to refer to the subject again, but for an allusion in the Report of a Committee on Dental Literature, which was understood to have been prompted by this provocation, to the effect that the "objection against the employment of dental journals as advertising media was invalid, and should in no way detract from their importance and value;" (using the words as reported in the Dental Cosmos, but without reporting the condemnation passed upon the editorial management of that journal).

Now, I have no where made objection, nor did I suppose my remarks would have been construed as making objection to our dental journals having an advertising sheet; nor was the point with reference to advertisements of general application.

The custom of advertising in a separate sheet, as an aid to defraying the expenses of publication, &c., is almost universal. It was adopted in the only two journals of which I have had control—the one a literary and scientific journal, published in this city in 1841 and '42, and the other a Medical and Dental Journal, published in Nashville, Tennessee, twelve years after, (1853—1856). This custom of advertising on the part of our dental journals is not only unobjectionable, if general and impartial, but eminently right and proper, in view of the interests of the profession.

But yet, in respect to *advertising*, the position of the Cosmos is anomalous, and is not imitated by our regular dental journals. Its advertising sheet appears to relate exclusively to what the publisher offers for sale. It does not contain advertisements of other establishments or manufacturers in the same line, and I understand it does not admit, certainly does not desire them, notwithstanding it might be of some interest or benefit to the profession to know their whereabouts. Among the advertisements carried in the *Dental Register* or the *Dental Times* there are none relating to articles which the publishers offer for sale. Their advertising columns are open to all in the trade, as the interests of the profession require on the part of regular journals. Even the publications gotten up by other establishments expressly as advertising media, for gratuitous circulation, I believe admit general advertisements.

Now, since the main issue of my remarks was evaded, and the question of advertising has been sprung, I will express my opinion, that while the custom of general and impartial advertising is right and desirable, yet, if a journal professedly "*devoted* to the *interests of the profession*," and, as such, presenting claims to associate and individual patronage, be made in its advertising department an exclusive vehicle of advertisement for its publisher as respects the profession; or, further, if its editorials partake largely of the nature of advertisement as respects prospective patients, whether directly or indirectly, to the disadvantage of other dealers or practitioners, then, viewed in the light of a regular journal, it becomes open for stricture. And upon both of these counts, I think the Cosmos stands in a measure condemned before the profession. And, notwithstanding its splendid typography and the respectability of its correspondents, it must rise to *much* higher ground if it hopes to be accepted as a standard journal.

The above will suggest the propriety of looking to both sides before undertaking to defend our journals from objections which have not been urged against them. It will also serve as a caution against taking issue upon any *partial statements* found in the above publication. It, moreover, serves to illustrate the insidious and mischievous nature of outside influence brought to bear upon the profession.

BUSINESS NOTICES RELATING TO THE PLASTIC METALLIC FILLING.

PRICE OF MATERIAL — LICENSES, &c.— The profession will perceive that the price of the FILLING is still maintained at the old rates, $2 an ingot. This was the price fixed when paper currency was equivalent to gold — that is, when $2, in currency was worth or would purchase twice as much as now. Had the price been gradually advanced with other things, it would then, during the past year, have sold at rates ranging from $4, to $5,50 per ingot.

But it was thought best, while giving all an opportunity to use it for trial, not to let the consideration of cost be an obstacle in the way of any, believing that those who were successful in using it would the more cheerfully respond to the conditions in respect to licenses.

It will be seen that the present terms, even to non-licensees wishing to use the material for trial, are really more favorable than they were at first (which objectors to the present conditions, *now* admit to have been "liberal:")—they obtain the material and a Right for one year at actually less than was formerly paid for material, while the Right is good for the face of it towards a license, which license secures the material at virtually one half the former price.

That a few who obtained grants under the old patent upon simply complying with the conditions formerly offered for a short time — that of purchasing a certain amount of material and making *application* for the grant, within a limited period — now obtain material at the old price, ought not to give offence. It is their gain and my loss, and does not affect others. As an earnest of a disposition to respect the patent, I would have been glad had every purchaser made application, and would most cheerfully have fulfilled my part of the obligation.

To waive the license *fee* would only necessitate raising the price of material to from $4, to $5 in present currency. What matter whether this really nominal advance be paid on license or material?

Those who comprehend and appreciate the object of the patent laws will recognize the necessity of the *license system*. The law understands and makes provision for practical difficulties which persons not experienced in business details do not readily comprehend.

With those, however, who merely seek a pretext or justification for *evading the patent*, I do not argue. To give *them* free scope in the using would only furnish them a cloak for infringement in the manufacture, &c.; and if they would disregard the rights of property in the one case, what claim have they to confidence in the other?

LICENSES guarantee the free use of any improvement upon the Filling, or any instrument or appliance for working it, for which I may hereafter obtain letters patent.

THE DENTAL CIRCULAR for May, 1864, contains directions for using the Filling, with cuts and description of Instruments employed. A copy will be sent to Licensees who have not received it; but as the edition is nearly exhausted we shall have none to spare where not needed.—The first print of the introductory pages, relating to the general Qualities of the Plastic Metallic Filling, will be found bound up with this, having been laid one side on account of typographical errors, which, however, are immaterial to the sense.

INSTRUMENTS.—A little improvement has been made in the points and blades in some respects, as suggested by experience. The price has been advanced somewhat, though in a less ratio than the advance on everything else.

I am getting up very neat instruments with silver and german-silver points and bulbs, which will please those with whom the cost is no great object. They come at $6, to $20 a set, according to material and style of finish.

A patent has been applied for on these instruments.

NOTICE TO GRANTEES UNDER THE PATENT OF 1860.—Those having Grants under the old patent should exchange them for regular licences. These grants do not afford protection under the new patent: but licenses under the new patent, afford protection under both. The latter also guarantee to the holder the free use of any subsequent improvements applicable in the case, while the former do not.

The grants under the old patent run for yet 9½ years from the date of the new, and may be exchanged for a license for the full term, or for ten years, by paying for the residue of the time, which comes to $11, for the remainder of the full term, or $1 for the remainder of the ten years.

THE PRESENT LIST OF LICENSEES, includes those who hold Grants under the first patent, as well as those who have Licenses under the late one. But the names of those having only Rights to use the material for trial, are, of course, not included in the list.

THE DIFFERENT NOS. OF THE FILLING are prepared to suit different operators.

No. 1, is the least plastic but works well in expert hands.

No. 2, is suitable for all ordinary cases, works handsomely, and is preferred by many.

No. 3, is very plastic, and especially useful for difficult cavities, and for building out. It is more readily manipulated by beginners, is preferred by most operators, and more generally used than the other Nos.

No. 4, is somewhat harder, but brittler This corresponds to the No. 1 which bore the old patent stamp, or to No. 1, as described in the "*Dental Circular*" for May, 1864, p. 21; and should be used only by experienced operators, as it will work at a higher temperature than the others. No. 1 bearing the new patent stamp (and there are none now on sale bearing the old,) is really a little more fusible than any. Nos. 2 and 3, however, appear thus far to be the standard Nos.

TRANSPORTATION &c.—The material and instruments can be furnished either by mail or express, purchasers paying charges.

PARCELS of goods are considered delivered to the purchaser when put in charge of the means of transportation designated; and for delay or damage in the transit, he must look to the transporters, who, alone are legally responsible for the safe surrendering of his property.

When ordered by Express, to collect on delivery, (C. O. D.), the Express charges for return of money are added to the bill, being about 30 cts. per rate, more or less, according to the rates of different lines.

If ordered by mail the remittance should cover the postage, any surplus being promptly returned with the parcel or by letter.

When the remittance is not sufficient to pay for the full order, (including postage,) only a corresponding amount in material or instruments is sent, returning the odd change;—the books must be kept square and not be complicated with small debits and credits. No standing accounts are kept in any case.

Remittances by mail come promptly, and thus far I have not known of a single instance to have miscarried. But by sending a Postal Money Order, which can now be bought at the post offices, it avoids all risk.

COURSE OF INSTRUCTION PROPOSED.

It is mainly to the younger members of the profession and those about to enter it, who have not become habituated to old ideas and modes of operating, that we must look for eminent success in the use of a material like this, which involves a new system of practice. If they possess a reasonable measure of natural skill and aptitude, they readily acquire a degree of proficiency in the manipulation of the Filling which older practitioners attain with difficulty. While there are probably not more than one third of all who have undertaken to use it, that have succeeded well—and many unable to manipulate it at all—I have never known a student with proper preliminary direction to fail. This is measurably the case with all new methods, which makes it specially incumbent on the part of preceptors to post their students in regard to *improvements.*

I hope by another year to be able to offer facilities for general and thorough instruction in the use of this, as well as other material. The fee for the course will be about $100. This will include a license to use the Filling and to manufacture it for office use, together with the processes of refining the metals &c.: Also the right to make and use for laboratory purposes the class of Alloys embraced in my former patent. But of this due announcement will be made.

It gives me pleasure to state also in this connection, that both of our older Dental Colleges—the Pennsylvania and Ohio Colleges of Dental Surgery—will afford their students instruction in the use of the Filling, and there is every assurance to believe it will be efficient.

OUR DENTAL JOURNAL.

THE DENTAL CIRCULAR AND EXAMINER is now regularly in the field. It will be published Quarterly, and at $1, for the present year; the next No. to issue in April.

It will bestow special attention upon whatever is new and useful in our specialty, with a view to stimulating and winning to its service the genius which still remains inutile, or has been driven to other fields; trusting also to EXAMINE faithfully the character and efficiency of our various means of professional advancement.

Its Principles will be those of universal application;—its Ethics, based upon the broad ground of common Morality as recognized by mankind.

As it does not and cannot expect to meet the wants of the Profession, it will earnestly advocate such means and instrumentalities as shall appear to be needed; and for faults and short-comings will be ever open to correction.

While it will not uphold or countenance evil doers, it extends good will and cheer to all in every good word and work.

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“ Avery, Otis, Honesdale, Pa.
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“ Brown, Jos., Rochester, N. Y.
“ Brown & Dills, Piqua, Ohio.
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“ Chase, J., Boston, Mass.
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“ Compton & Willard, Dayton, Ohio.
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THE

DENTAL CIRCULAR AND EXAMINER.

Vol. I.] ALBANY, N. Y., APRIL, 1865. [No. 2.

THE TEETH, AS OBJECTS OF STUDY.*

At a time when Dental Surgery, fully recognized as a Medical Science, has begun to be incorporated in the curriculum of the Colleges as an indispensible part of a medical education, the organs which it has for its care become objects of increased interest.

We propose, therefore, to designate a few points wherein the teeth are specially worthy of study on the part of medical men. In doing this we will confine ourself to the teeth themselves, without reference to their connections either with the neighboring parts or the general system.

Indeed the importance of these connections have never been lost sight of by the profession. The celebrated John Hunter, who is charged with having propagated the erroneous doctrine that the teeth are inorganic, and who certainly did regard them as "extraneous bodies with respect to a circulation through their substance," was nevertheless well aware of the nature of their relations. He urges attention to the teeth "not only for the preservation of themselves," but "also on account of other parts with which they are connected; for diseases of the teeth," he continues, "are apt to produce diseases in the neighboring parts, frequently of very serious consequences." * * *. "Their diseases, considered abstractly, are indeed very simple, but by the relations which the teeth bear to the body in general, and the parts with which they are immediately connected, they become extremely complicated." †

M. Jourdain, of France, who was contemporary with John Hunter, insists in his writings upon the importance of these connections, and his work on the *Surgery of the Mouth* is replete with cases in illustration of it. He illustrates the pathological relations of the teeth with the antrum of Highmore, the tongue, palate, maxilla, and salivary glands, with the eyes, the ear, &c., with the stomach, intestines, uterus, brain, and general system. And he draws a strong line of discrimination between true Dental Surgery and what he terms the "*mechanism of dentistry*," urges the attention of Surgeons to the former, and ends his work by saying: "We must be faithful and diligent in the study of this essential branch of the healing art—the SURGERY of the MOUTH." ‡

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*From the Dental Department of the Journal of Medical and Physical Science.

† Natural History of the Teeth.

‡ Diseases and Surgical Operations of the Mouth, translated by Dr. P. H. Austen.

The sympathy of the general system with the teeth, in a diseased condition, has subsequently attracted the special notice of medical writers, and none perhaps have more forcibly illustrated it than Dr. Rush, who traced many cases of disease to the bad condition of the teeth, such as dyspepsia, neuralgia, epilepsy, rheumatism, fever, &c.

The teeth themselves, however, were formerly regarded as comparatively unimportant, and their diseases, "considered abstractly," as very simple. Hence their study and treatment were neglected by the profession, and the care of them fell into the hands of whomsoever saw fit to assume this responsibility. So long as the dentist confined himself to the teeth, little danger was apprehended; though he was often admonished against transcending his limits or rebuked for doing so. John Hunter, in speaking of abscess of the jaws, says: "In such cases, it is but too common for the dentist to be very busy, and perhaps do mischief through ignorance." But dental surgery, in its comprehensive sense, had not as yet been abandoned by the medical profession.

Thus it appears that the great error which physiologists of former times fell into, consisted, not in a lack of knowledge concerning the connections of the dental system, but in a misconception as to the nature of the teeth themselves; an error which has continued prevalent down to the present time. Every observant physician is well aware of the important sympathies of the dental system, while at the same time the teeth seem to be generally regarded by the profession as of little consequence, either as objects of pathological or physiological investigation. And to this latter cause, aided by others, we think is to be traced the decline of dental surgery and its almost entire separation from medicine. But the researches of modern times have discovered in the teeth a structure highly organized and remarkably endowed with vitality. The extent of their sympathies is also better understood, easier accounted for, and more fully appreciated; hence the recent revival of dental surgery as a medical science, and the consequent interest which it should elicit from the whole profession.

Professor Horner, in his *Anatomy and Histology*, says:

"Those untractable and mineral-like bodies, the teeth—exciting once almost the doubt of intrinsic organization, now penetrated by the microscope in a wonderful manner, and exhibiting the most surprising organization; an organization so characteristic and permanent, that it has become one of the most efficient means of discriminating in fragments of animals the kind to which they belonged, whether of the present or a former order of the world. Each of the component parts of the teeth, the cement, enamel and ivory, exhibiting a specific organization; its fibrils and its tubules, whose arrangement, in being specific, gives decided character to the specimen in question."

The zoological and paleontological importance of the teeth consequently rises to the first magnitude; affording, as they do, the principal basis, in many respects, of a natural or physiological classification of existing animals, and the only criterion for classifying many extinct species; contributing remarkably to modify, enlarge and perfect this department of science, and leading to the discovery of lost "links," and hence to the reunion of sundered parts, in the chain of being hitherto regarded as irreparable or even originally defective.

Hugh Miller gives a graphic sketch, in his inimitable style, of a species of the ancient Celacanth family, which partakes both of the ichthyic and reptilian character, and which, "for untold ages, has had no living representative." "The jaws were thickly set with an outer range of true fish teeth, and more thinly with an inner range of what seem *reptile* teeth, that stood up, tall and bulky, behind the others, like officers on horse back, seen over the heads of their foot soldiers in front." In another place, in speaking of a member of the same family, the *Asterolepis*, wherein "immediately behind the front row — in which the teeth present the ordinary ichthyic appearance — there was a thickly set row of huge *reptile* teeth*;* " he remarks : "The reptile had, as yet, no existence in creation ; but we see its future coming symbolized in the dentition of this ancient ganoid ; it, as it were, shows the *crocodile* lying entrenched behind the fish." *

Professor Owen, in his elaborate *Comparative Anatomy of the Teeth,* commenting on the recently discovered *Rhynchosaurus* as a connecting link between the classes Reptila and Mammalia, exclaims : "Our interest rises almost to astonishment, when, in a saurian skull, we find superadded to the horn-clad mandibles of the tortoise, a pair of tusks, borrowed, as it were, from the mammalian class, or rather foreshadowing a structure, which, in the actual creation, is peculiar to certain members of the highest organized warm-blooded animals."

The hard parts of the body are nearly all the relics we possess of a former fauna ; and as the teeth are, in many instances, the only durable records of the past, remaining perfect in cases where the bones themselves have mouldered away, it is most fortunate to science that they should present characters so significant — serving not only by their form and relative position, but even by their structure, to designate the place, form and habits of different species and genera.

"So constantly do they correspond," says Professor Agassiz, in his Principles of Zoology, "with the structure of other parts of the body, that a single molar is sufficient to indicate not only the mode of life of the animal to which it belongs, and show whether it feeds on flesh or vegetables, or both, but also to determine the particular group to which it is related." "Even the internal structure of the teeth is so peculiar in each group of animals, and yet subject to such invariable rules, that it is possible to determine with precision, the general structure of an animal, merely by investigating the fragment of a tooth under a miscroscope."

Nor is this all. Comparative dental *Physiology* opens new wonders to the gaze of the naturalist, and pours an additional flood of light upon his science. The formation, development, and decidence of the teeth furnish zoological indications as remarkable as those afforded by form, position and structure ; thereby greatly extending our knowledge respecting the animal kingdom, its natural divisions, and the correct principles of classification.

Such revelations, so important in their bearings upon comparative and general anatomy, and consequently upon human physiology — a science inseparably allied to the former — should not fail to elicit the attention of the medical profession. The human teeth, especially, solicit investigation, not only as the standard of comparison in odontological researches, but as affording valuable indications of the structure and functions of the human system; such investigation, while replete in itself with interest and profit, greatly contributing to the elucidation of other subjects of physiological and pathological inquiry. In point of structure the teeth furnish invaluable aid to a correct knowledge of the other hard parts. Dr. Carpender speaking of the tissues of teeth and bone says, "the structure of both of them is well adapted to demonstrate the distinction between the tissues themselves, and those subsidiary parts, by which they are connected with the rest of the structure." The same might be said with respect to the pathological conditions of both.

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* Footprints of the Creator, or the Asterolepis of Stromness.

It is a curious fact, that a tooth comprises within itself nearly every tissue of the body, from the least organized to the most highly vitalized. Commencing within, and proceeding outward through the natural opening at the apex of the root, we have the pulp, comprising the nerve and blood vessels with their tunics, then the peridental membrane investing the root and giving off a duplicature to the periosteum of the alveolus—which is properly a part of the tooth since it grows with it and wastes away when it is removed—next, in juxtaposition with this osseous structure is the cementum, nearly allied to true bone, then the compact but still highly organized dentine, or ivory, and lastly the enamel or earthy covering, which may be regarded as inorganic. Or, commencing without, we pass from a crystalline mineral substance, along a structure of high and still higher organization, to that which is all vitality, all sensibility, the vehicle of impressions to the brain, and through this, of sensations to the mind. Thus affording an instance of a blending and union of organic with inorganic structure, a regular transition from material to immaterial nature, a continuous link between mind and matter.

The germination, ossification, development, decidence and succession of the teeth, present one of the most beautiful and wonderful series of phenomena in the whole range of physiology. Nor are these without instruction in regard to other vital phenomena. We find in them, taken individually, a repetition of analagous processes throughout the general system, and, collectively considered, a magnified representation of the evolution of the cell-germ upon the one hand, and upon the other, a miniature imitation of embryonic development.

But the vital characteristics of the teeth, as yet but little investigated by medical inquirers in general, certainly much better understood by those who have made this part of the body a subject of practical as well as theoretical acquaintance, present peculiarities and indications equally remarkable with those already referred to. We do not now allude to the connections of the teeth, whether through their nervous and vascular tissues with the general system or with any of its organs, or through the peridental membrane with the periosteum, bone and muscles of the neighboring parts; these are indeed worthy of attentive study in consequence of important functions and sympathies; but we here refer to the characteristics of the true dental tissue, in its normal condition in the living ecomomy.

Apart from its remarkable organization and mode of formation, the dental tissue, or tooth bone, is most certainly endowed—whatever may be inculcated in medical works to the contrary—with all the essential characteristics of vitality—characteristics which though perhaps beyond the cognizance of theoretical physiologists, are nevertheless sufficiently obvious to every observant dental surgeon. This tissue has within itself a system of circulation by which and through which it receives nutrition from the general circulation. It is subject to a grade of inflammatory action, admits of interstitial absorption and deposition to a certain extent, and is capable of, and liable to, accessions and waste of substance, from without and within, as the result both of physiological and pathological processes. It is supplied undoubtedly with nervous conduits by means of which it is possessed of irritability, and of sensibility to such an extent as to render the teeth subservient to the purposes of general sensation, and, to some extent, organs of special sensation. In consequence of this they are susceptible, often keenly so, to external impressions as from thermal, electrical, and chemical changes, and even from ordinary tactility. This susceptibility is often greatly heightened by inflammatory action, and may become so exalted as to render the exposed surface of the dentine as intolerant of irritants as the dental pulp itself, requiring for its subjugation a course of local treatment preparatory to the operations that may be demanded in such cases.

It is in consequence of these characteristics that the sympathies of the teeth, in peculiar conditions of the system, become so diffuse and complicated, frequently, too, when their own condition, apparently healthy, would seem to furnish no explanation of the cause, but rather to forbid the suspicion of the teeth being in any way connected with the general disturbance. We cannot, however, do more than to allude to these characteristics at present, but we purpose a fuller consideration of them in a more regular way hereafter. They afford good reason for the earnestness with which dentists, looking to the great interests of medical science, and through it to those of humanity, have ever solicited the attention of general practitioners to the province of Dental Surgery.

The necessity of a better knowledge of the nature and treatment of the teeth on the part of physicians has indeed become recognized in the medical profession. With reference to the dental lectureship recently incorporated in the curriculum of the New York Medical College, the last Annual Announcement of this institution, says:

"*The Diseases and Treatment of the Teeth.*—The great prevalence of diseases of the teeth, and their frequent complications with those of the nervous system, make it an object of paramount importance to the student of medicine and surgery to understand the pathology and treatment of the dental system. Even if the physician does not intend to practice in the department of *Dental Surgery*, he should be familiar with the diseases of the teeth, and understand the correct principles which govern their treatment, that he may be able to diagnose those sympathetic affections depending upon dental irritation, give proper advice for the management of the teeth, and become so far familiar with the nature of dental operations as to discriminate between the skillful dentist and charlatan."

Neither are the manual and mechanical manipulations of our art to be underrated. Manual skill is, and ought to be, the pride of the surgeon, whether devoted to a specialty or not. Nor do we regard even the mechanical part of dentistry so far removed from the province of medicine as is commonly imagined. A *thoroughly* qualified physician or surgeon — one whose head, heart and *hands* were all fully brought into service in fulfillment of the great mission of his art—would find himself conversant with exercises quite as mechanical in their nature as the construction and adaptation of an artificial dental fixture. And general medicine will have to draw, far more largely than it has done, upon the resources of mechanism, in order to accomplish the high achievements which it contemplates in behalf of suffering humanity. B. W.,— *So. Journal of the Medical and Physical Sciences*, Jan., 1853—*Department of Dental Surgery.*

WHAT IS THE BEST METHOD OF SEPARATING TEETH?

BY DR. GEO. A. MILLS.

BROOKLYN, Feb. 16th, 1865.

DR. WOOD: DEAR SIR:

Your letter is at hand, asking me to give you a short article upon some subject connected with the profession for your journal.

Such as I have I freely give, hoping to guide some enquirer, as we cannot expect to guide all. I will choose the following question for my subject:

What is the best method of separating teeth, by which we can remove decay, and fill?

I will answer according to my own experience, and that has been my best teacher. After two years or more of experience, I have come to the honest conclusion that it is by the Wedge—driven by my pet, the Mallet.

This may seem to many an entirely new idea, and to others not so. I am well aware that there will be some that will not agree with me at all, and some who have never used it for this purpose will even dare to use it, and I sincerely trust will meet with success and favor.

I do not hesitate to say that for general practice it is the *best* method now known. It is the most humane, the most speedy, and accomplishes the best results. Proof: I have given it a faithful trial upon my own teeth and those of my patients.

I have used it kindly and perseveringly.

I have kept a full record from my patients' own words, endeavoring to convince others as well as myself which method was to be the favorite one in practice, and I find that the wedge takes 90 per cent of the favor compared with all other methods, "so far as heard from."

I know the objections that are brought against its use by those I highly esteem, and they seem real objections to them, but I do not find them so. I may say with truth that I make almost an universal use of it in my practice.

As far as I am informed, Dr. Wm. H. Atkinson is the originator of its use for the purpose spoken of, and I wish to put it upon record here, that

I consider, of the many valuable ideas that he has so unsparingly given to our profession, pathological, surgical and mechanical, the usè of the mallet stands No. 1, the wedge, No. 2.

As some may not know how the wedge is, or should be, properly used, I will give the manner of its use by others as well as myself.

For teeth hard to be separated, use well seasoned hickory; if medium, or easily moved, orange wood, *alias jewelers sticks*, making the wedge in shape to compare with the space in which it is to be driven; leaving the surface to come in contact with the gum round and smooth, insert and drive it gently and faithfully, so that it will give the space required.

If the teeth are very hard to move, drive and give a few moments for them to yield, and they will very perceptibly move; in this way the desired space is acquired. But this is not the only advantage derived from its use. It prevents moisture and blood from oozing up or down the tooth to the cavity to be filled.

It quiets sensitive dentine, and is indispensable for the finishing of the filling (if the comfort of the patient is taken into consideration at all) preventing the lacerating of the gums by files, sand paper, tape, &c.

I have tried various experiments to test the reducing of the sensitiveness of dentine, by excavating the cavity with and without the wedge. And I have it from my patients that a large percentage are in favor of the wedge.

The use of the wedge will be abused, I have no doubt, as the use of the mallet is I know.

It will be brought into disrepute by some, as many other good things are by being abused.

Give the wedge a faithful trial, and after removing it from the space, bathe the parts with tincture of Arnica, and all is well.

I have but one desire in giving this to the profession at large, and that is, that some may be benefited as my patients have been, and myself also. As I "have freely received, I freely give."

Very respectfully,

GEO. A. MILLS.

FILLING COMPOUND CAVITIES IN TEETH.

BY DR. CORYDON PALMER.

The following extract from Dr. Palmer's excellent essay on "FILLING TEETH," read before the Northern Ohio Dental Association, and published in the dental journals, will be read with interest.

OF COMPOUND FILLING.—Suppose the first superior left molar. Decay on the anterior proximal surface; nerve exposed or dead, as the case may be. Heat as before [by passing the foil through the flame of a spirit lamp,] and fill each root with gold, then finish with cylinders of tin foil, or use Wood's metal,* taking care to so place strips of gold foil against the inside of the face wall of the cavity to fill against, and by this means hide the dark shade of the tin or Wood's metal, making the tooth present the appearance of having a gold filling to the face. It has long been a practice of mine to place gold in this way against the inside of the thin face walls of the teeth when inserting tin fillings, making the teeth look well and keep their good appearance; it works beautifully with Wood's metal also.

I cannot pass over this part of my subject without giving it more notice, as it is one of particular interest to me. There are many patients who have badly decayed front teeth that cannot pay for gold, and yet they wish to have the benefit of filling. In such cases tin filling or Wood's metal will preserve the teeth, and by facing the filling with gold make them look presentable. These cases will occur for the most part with dead teeth and fang fillings; but no matter what tooth is to be filled with tin or Wood's metal, when the face of the tooth is thin enough to show through, I lay a few folds of gold foil, annealed to make it a little stiffer, and by that means easier to be kept in place, and fill against it, making a satisfactory looking filling that wears well. The question may arise, does the edge of the gold protrude with the tin or metal? I answer, it does in many cases. I would build out the front with gold filling, underneath with tin or metal. If there is no building out in the case, I lay the gold in place, holding it with an instrument with one hand while I introduce the filling with the other. When the filling is condensed, it is burnished down with the gold together and finished off, letting the gold come clean to the edge. An objection to this may arise, for it is said that the galvanic action will cause the tooth so filled to trouble. To this I can say that it is not true, as long experience has proved to me that it will do exceedingly well. Another question has arisen: that is, will not there be galvanic action at the line of immediate contact of the gold and tin that composes in this case the filling? Possibly there may be some slight action of that kind take place which would cause the filling to waste a little. So do corrosive agents taken into the mouth, and the natural wear and waste cause them to wear away. We need not go into fine-spun chemical theories, whether there will be galvanic action enough to discover it by the microscope, so long as there can no action be felt, and the fillings last and give comfort to the patient and satisfaction to the operator.

It has been laid down as true that two metals cannot be tolerated in the cavity of a tooth. I am prepared to say that this is a mistake; there can be no objections to compound filling in dead teeth on account of galvanic action, and I find not the least objection to a gold facing in a living tooth filled with tin foil or Wood's metal. I have filled some as sensitive living teeth in this way as I ever did with gold or tin separately, and had no complaint.

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*Speaking of the different materials for filling teeth, in a preceding part of the paper, the author remarks:

"Wood's metal, in many respects, is far superior to any other kind of filling, except gold. By its use the most frail and broken-down teeth, and even stumps, may be built up to any desired form, and made to articulate with corresponding teeth, and become useful."

If the filling is air and moisture proof, no galvanic action can arise; the mistaken notion has arisen out of the fact that the fillings were imperfect, admitting the fluids of the mouth to penetrate and set up a battery. Let us make good, solid, perfectly well condensed fillings, pressed upon every part of the surface of the cavities impervious to air and moisture, and we need not fear to combine these metals.

OBJECTIONS URGED TO WOOD'S METAL.

As fair and candid objections to an article are of great value, whether by way of suggesting improvement in the article itself or in the manner of using it, I have been anxious to hear what competent and experienced judges had to urge against the Plastic Metallic Filling, free to communicate whatever should come from correspondents or be found in print, and thus put the profession in possession of any *facts* elicited. With this view the following are submitted for the want of something more tangible and reliable, although coming from operators who it is but too evident have never learned to use the Filling or even provided themselves with suitable instruments for working it, and one of whom demands some comments by way of elucidation and correction.

I will first reproduce what was referred to in the "*Dental Circular*" for May, 1864, from an editorial in the "*Dental Cosmos*" for April. Under the caption of "B. WOOD'S IMPROVED PLASTIC METALLIC FILLING," the writer says:

> "We do not find any use for plastic filling in our practice, because we do not use anything for plugging teeth but gold, Hill's Stopping, oxichloride of zinc and tin.* If we required any thing else in our practice, we would use the old fashioned amalgam, or its modification known as Townsend's; because it is hard enough for all practical purposes, and has not the disadvantage of complicating the manipulations with it by using heat."

This comprised the sum total of objection urged in the editorial, and although the writer essayed further on to confound the Filling with certain *mercurial* preparations, and upon that predicated some strictures (in a temper, however, quite unfriendly to impartial discussion), they were wholly irrelevant to the subject and need not be cited.

The next appeared in a Western newspaper, under the heading of "DENTAL HINTS," as follows; (the author's italicizing is preserved):

> "There is nothing so good to fill decayed teeth with as gold. Its high price, however, has led the dentists to seek for other materials less expensive. "Os Artificial" is good for temporary filling in certain cases.

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* Hill's Stopping and oxichloride of zinc, however, are both "plastic fillings."

"Wood's Metallic Filling" would be pretty good, but the fact that *it has to be melted into the tooth with hot irons* is an objection to its general use. Experience has also shown that it is too soft; and, being composed of base metals, is gradually destroyed by the fluids of the mouth.

"Tin makes a good filling, though upon the grinding surface of the teeth it is too soft, and in cavities in the approximate surfaces it is difficult of manipulation.

"Silver and tin, or, better, silver and platinum amalgamated with quicksilver, is the best material except gold for filling cavities in decayed teeth.

"Amalgam is harmless even if taken into the stomach. I have had large quantities accidentally swallowed with the food soon after I had built up teeth with it, and always without evil consequences."

The following is from an abler article, perhaps, by the author first quoted, in the Dental Cosmos for November, entitled, "PRACTICAL HINTS."

Refering to what he confounds together under the general name of "*cement* fillings*, Townsend's, Wood's or the os artificial" (oxichloride of zinc) the writer remarks:

"We might say a word here about those fillings; they are all perhaps well enough in their proper places, but to use them regardless of the future welfare of the teeth, they are a great evil; in using them the future pathology of the teeth should be carefully considered. To place a Townsend's amalgam or a Wood's metal in a tooth where the pulp is liable to inflammation, or where there is a doubt as to whether there is sufficient dentine to protect the pulp, is bad and dangerous practice; gold is much more readily removed than either of those metals; if it be a doubtful case, Hill's stopping is a much better *test plug*. We have a young gentleman under treatment, at present, who has all kinds of plugs in his teeth—Hill's stopping, Wood's metal, Townsend's amalgam, and gold; the gold fillings have been well done, but the other materials have been used according to the localities of the cavities, and the different sensibilities of the teeth, without regard to the teeth being in condition for receiving plugs or not; and any one with a proper idea of the diseases of the teeth, can fancy what a condition the patient finally got into, and any one can imagine what a time we have had in getting out those hard fillings, to get to the pulp cavities for treatment. But what are we to expect, when the inventors of these materials urge their use in tender teeth; or, in other words, that they are useful when teeth are too tender to be plugged with gold? When they are used by the ignorant to get rid of placing a tooth in proper condition for receiving the filling, God help the patient! And when they are employed, to escape the trouble attending proper treatment and economy of time, or proper study of the diseases to which the teeth are liable, what hope have we for the elevation and advancement of our noble art?"

And (one may here inquire) when *gold*, or anything else, is employed with the same recklessness what better hope have we for such elevation!

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*The word "cement" in its common acceptation in dentistry denotes AMALGAM, a mixture of metallic mercury with other metals in filings, forming a paste which finally hardens.

As the above remarks are general and somewhat confused, being partly applicable to one article, partly to another, partly also to gold, and conversely, partly inapplicable to any suitable material when judiciously and skillfully employed, and as I wish to disconnect what is urged against the Plastic Metallic Filling, I will put it in more specific form.

Of any and all of the materials mentioned, it is in a certain sense true that "to use them regardless of the future welfare of the teeth, they are a great evil;" which holds against "Wood's Metal," gold, or any other—not strictly against the *materials* themselves—but to *so use* them is certainly an evil.

The particular objection to "Wood's Metal" relates to it as a "*testplug*" in doubtful cases when the nerve is unprotected and liable to inflammation, on the ground that the metal makes a plug so hard and secure that it is very difficult to remove: "gold," says the writer "is much more readily removed;"—while he has had a serious time in "getting out those hard fillings" of the former metal, &c.

The just construction of the sentence really includes "Hill's stopping" among "those hard fillings," but this was evidently unintentional, having just before recommended it as a better *test plug*, obviously on account of its not being hard, and that it may be softened with the heated point of a plugger so as to be removed with facility. I do not allude to this for verbal criticism (although editors and scientific writers are justly amenable for looseness in the use of language), but to say, that "Wood's Metal," although really hard, can be removed in a similar way by the use of suitable instruments, viz. those employed for introducing it.

But the same objection applies to putting a *good* and *secure* plug of *gold*, or any *permanent* plug, in a tooth in anticipation of its requiring removal. And the writer does some injustice (unintentionally I trust) to gold, that is, if well introduced, when saying "gold is much more readily removed" than Wood's Metal. But while I thank him for the implied compliment (which perhaps was not designed), candor compels me to admit that I have seen gold plugs so firmly and securely consolidated as to be full as hard, to say the least, as the former, and would require as serious a task for their removal as he experienced with that.

The proper way is to see that the teeth are "in a condition for receiving plugs," whatever the material used. When the pulp is exposed or liable to inflammation I would not recommend either the Plastic Metallic Filling or gold, unless the latter were so loosely packed that it could be "readily removed." But we may hereafter take occasion to speak of the *treatment* of cases like those spoken of.

In reference to the reproof as to "the inventors of these materials urging their use in tender teeth; or, in other words, that they are useful when teeth are too tender to be plugged with gold" (by which appears to be meant, when the nerve is so far exposed as not to bear the pressure of a gold plug), I may remark that Dr. Townsend, whose formula of amalgam is mentioned, though he was not the "inventor" of amalgam nor of the form which goes under his name, has been dead a number of years; and as to the os artificial, (which was invented in France some years ago for "stucco work"), the writer himself recommended it in cases similar to those upon which he now predicates his reproof; and as he commends Hill's stopping for the purpose, he cannot mean to censure the inventor of that. In regard to myself, therefore, for whom the reflection would *seem* to be intended, or may be so understood by the readers of the "Cosmos," I will simply quote the following from "Directions for using the Plastic Metallic Filling," as published by me and in substance repeatedly reiterated, so far as they relate to "doubtful cases;" suggesting whether it would not be well for the editor to favor his readers with some direction or information necessary to their working the material with credit to themselves and benefit to their patients.

"The Plastic Metallic Filling is designed for making perfect and durable plugs—not for temporarily stopping up diseased and worthless teeth. Therefore let the cavity be well prepared, and the whole operation performed with the view of saving the tooth permanently."

For the rest see *Dental Register* for Jan., 1864, also the "Dental Circular" for May, 1864, page 19–20, and foot note p. 10.

But these "Practical Hints" have a "moral" as well as a "practical" import, for it is to be observed that the writer of them at the first *represented* "Wood's Metal" as a *mercurial* compound, claiming to have himself discovered and used the same thing many years ago, and that this representation *has never been retracted*, neither by himself nor his associates, but on the contrary whatever they have said in relation to the subject has rather tended to confirm the impression in the minds of readers not having access to other sources of information, and that there is poor prospect of the correction ever reaching them through that source.

B. W.

A CASE.

BY DR. GAM'L JACKSON.

[From the Dental Register, Nov., 1864.]

A gentleman called at my office a year and a half ago to have his teeth examined, particularly the right superior first bicuspid. The nerve of the tooth had been destroyed, and the fangs and crown had been filled with gold one year before. The plug was nearly two-thirds as large as the entire crown; the buccal and lingual walls, and half of the distal only remaining. In making this plug the Dentist had succeeded in splitting the tooth, dividing the crown fairly between the cusps, the split diverging beneath the gum obliquely across the buccal fang, and terminating at about one-third its length on the buccal side. The plug was loose and easily removed. A cut of rubber tubing was placed on the tooth, and in two days the parts which had become permanently separated, were brought perfectly together. My patient was here called away on business, and when he returned, three weeks afterwards, the case was complicated with abscess. One week's treatment resulted favorably, but the smaller piece of the tooth was left quite loose. The operation was completed by putting an ordinary shaped bolt made from No. 18, hard gold wire through the tooth, drilling from about the middle of the buccal surface. The bolt was put through from the lingual side, so that the nut could be readily tightened to hold the parts together. The cavity of the divided fang was filled with cotton, moistened with creosote, and the crown with Wood's Filling. The end of the bolt was burnished to a head over the nut, and the case was dismissed. I examined this tooth a few days since and found it substantially as when I left it eighteen months ago, and my patient reports his perfect satisfaction with it.

MANNER OF MANIPULATING THE PLASTIC METALLIC FILLING.

BY J. S. WOOD, M. D., OF LANSING, MICH.

Yours, requesting a description of my method of manipulating with the Plastic Metallic Filling, is just received, and I haste to reply, viz:

After preparing the cavity as for gold, dry it out, and, to make "assurance doubly sure," roll up a little pledget of lint about the size of a pin's head, place this in the cavity, then with a warmed instrument wipe it all round until the last particle of moisture is removed and the tooth a little warmed. The instrument should be held as a pen in writing, and the end of one of the fingers rested upon an adjoining tooth, or some convenient point, while applying the metal. Now heat the instrument just so as to render the metal fairly PLASTIC, *not* FLUID, touch it to a pellet of the metal — previously cut up — and carry it to the tooth; steady the hand as above directed, and notice the exact point, and apply it on one side where the cavity is most *undercut*. Wipe off the metal with a single pass from within the cavity outward, then warm the instrument for a second or two over the spirit lamp, and make another pass or two to smooth down the edges of the pellet already applied. If this be done with some degree of rapidity, the instrument will be sufficiently warm to take up and apply another pellet. In like manner continue until you have the entire cavity lined all around. Then fill up the centre in the same manner, until you have the cavity quite full.

Now heat the instrument considerably hotter than before—steadying the hand as before—and notice the exact point you wish removed or smoothed down, and with a rapid pass over the surface flirt off the superfluous metal. Another and another pass may be made as occasion requires. If the instrument be just hot enough, in this way the plug may be polished off to perfection without the aid of a scraper or polisher — leaving a perfectly smooth and lustrous surface.

To remove a Plastic Metallic plug, heat the instrument quite hot and press it gently upon the plug for about a second, or until the edge of your plugger sinks a little into the plug, and then quickly scoop out what is already melted; wipe off the instrument, and take out a little more in the same way, and finally remove the remainder from the sides and inequalities with an excavator.

Of course there are many particulars that cannot be accurately elucidated in a hasty description like this. But these the persevering and ingenious dentist will discover as he progresses.

I wish here to add: the more I use your material the better I like it. It supplies a *desideratum* long felt, a middle way between gold and amalgam; and I do not now see what more could be desired. I have used it in many cases in front teeth where the enamel was so frail as not to admit of consolidating gold. In such cases I have lined the cavity with the Filling as before described, except in front, and then laid in next the enamel a single thickness (or two) of gold foil; then with care and precision apply the metal — pressing it and the foil nicely to their place — then fill up the centre and polish off as before. This leaves the yellow tinge to show through the enamel as from a solid gold plug.

The other day, in putting in a plate of matched teeth for a gentleman, I found three of the inferior incisors so badly worn away on the inner side by two remaining upper teeth that it seemed desirous to keep the jaws a little further apart; this threw the inferior incisors further out, and made the few natural teeth antagonize in front. But in so doing, two molars on the right side — his main dependence for masticating, were kept apart and thus rendered useless. The inferior molar had a pretty large sized cavity in its crown; this I cut away and enlarged considerably — made the anchorage "good enough," and filled it with the P. M. F., building it out, full size on the top, and causing it to antagonize perfectly with its fellow, while the scattering natural teeth and artificial ones put in also matched; — the jaws (as I said) being kept a little further apart than before.

Now this might have been built out with gold? No; it would have been quite impossible in his case, the tendency to cramp and other causes quite forbid it, as did also his purse. Without the Plastic Metallic Filling, I know not how I could have even partially succeeded; with it I secured my $80, and the man went on his way rejoicing.

In fifty other cases, perhaps, within the last three years, I should have failed or only partially succeeded without the Filling.

It becomes the skillful dentist to be like Paul, "become all things to all men," particularly to the end of keeping good men out of the hands of the *cheap dentist*. In conclusion, I will say, I pity the dentist that has not will or skill enough to learn to use the Plastic Metallic Filling, and the common sense of community will eventually pity him too.

In haste, ever yours truly,

J. S. WOOD.

SPECIFICATION OF THE PATENT.

IMPROVED FUSIBLE METAL FOR FILLING TEETH, PATENTED SEPT. 4, 1864, AS COMPARED WITH THE FORM OF FUSIBLE ALLOY, EMBRACED IN LETTERS-PATENT OF MARCH 20, 1860, AND OTHER FUSIBLE METAL.

In order to answer the inquiry as to wherein the Plastic Metallic Filling differs from "Wood's Fusible Metal," patented in 1860, we give the following full extracts from the "Specification" itself. Having claimed the invention of "a new and useful improvement in Fusible Metal," for the purpose of filling teeth, &c., "being an improvement for said purpose on the form of fusible alloy, embraced in letters patent granted March 20, 1860," the Specification proceeds:

"This invention consists in so changing and adjusting the proportions of said fusible alloy as to produce a metal which, in addition to the requisite fusibility, hardness and tenacity, possesses a degree of *plasticity* or semi-fluidity during a certain range of temperature, so as to be easy of manipulation, and to admit of successful application to a dental cavity, or defective part of a tooth, and which on congealing in the cavity or place to which it is applied will not shrink to admit the fluids of the mouth, nor, upon the other hand, expand so as to injure the shell of a tooth.

* * * * * * * *

The metal so prepared remains soft and plastic between 155° and 180° Fahr., or thereabouts, giving a range of some twenty or thirty degrees during which it can be manipulated; this affords time for conveyance, without hurry, to the desired place, and enables it to be moulded securely to the cavity of a tooth.

This quality of plasticity is essential in order to facility and perfection in the execution of the work. A metal which passses immediately, or quite suddenly, from a fluid to a solid state, and *vice versa*, is attended with serious difficulty. Its tendency to assume while fluid a spherical form causes it when fused into the cavity of a tooth to roll up or recede from the walls and margins of the cavity, thereby leaving imperfections; and at the point of congelation it becomes too quickly solid and unimpressible for successful introduction. Whereas, if plastic during a sufficient range of temperature, it can be moulded to every part; and if applied by sections, each piece congealing as introduced, the temperature of the mass in a tooth need hardly exceed that at which the metal congeals. This plastic condition, moreover, affords a criterion and safeguard as to the temperature; which a fluid condition does not afford, being but fluid at whatever degree of heat.

Practical freedom from shrinkage and expansion is essential for the ultimate success of the operation; for, if the filling on solidifying shrinks from the walls of the cavity, so as to admit the fluids of the mouth, decay will go on, and the object of the work be defeated; on the other hand, if it expands so as to exert undue pressure against the walls, it may induce fracture. It is also desirable that the metal be sufficiently hard to endure the wear of mastication.

. For a better understanding of the working qualities of the metal, I will briefly state my manner of applying it. I apply it by means of instruments constructed for the purpose, having variously shaped points, flat, round or square, with a bulb near the point the better to retain the heat. The metal is cut up into small blocks or pieces suited to the cavity. The proper instrument being heated sufficient to soften the metal, by holding the bulb a few moments over the flame of a spirit lamp, the point is pressed upon one of the blocks, which on softening clings to it, and is thus carried to the cavity or defective part of the tooth and moulded to the place. Successive blocks are taken up and applied in the same way until the work is complete. The surface may then be smoothed with the heated instrument, or trimmed down with a file or scraper, and finished off the same as plugs of gold and tin.

* * * * * * * *

I am aware that fusible metals have hitherto been employed for filling teeth. An alloy consisting substantially of three parts of tin, five parts of lead, and eight parts of bismuth, or thereabouts, fusible at about 200° Fahr., and congealing but little under the point of *fluidity* (say two or three degrees), was some years ago in quite general use for the purpose, and is yet used to some extent. But the minimum heat required for its fusion is regarded too high for general safety; and, as the metal passes so suddenly from a fluid to a solid state, it is liable to the objections above stated, and is, indeed, inapplicable for many cases, being confined chiefly to cavities in the coronal surfaces of *lower teeth*. It, moreover, expands on congealing to an extent that renders it liable to crack the frail shell of a tooth. It is rendered more fusible by the addition of mercury, and thus modified has been used for filling teeth; but this renders the compound comparatively fragile, more susceptible to oxidation, and otherwise objectionable. In either case this metal is much softer and less durable than that which I prepare as herein described. The manner of applying it was different, being usually dropped, in a fluid state, into the tooth cavity, or applied in bits and melted in with a hot instrument.

The new fusible alloy embraced in letters patent granted to me the date aforesaid . . . melts at a temperature low enough for general use in filling teeth; but it passes so suddenly from a fluid to a solid state that it is unmanagable, and for most cases inapplicable, for reasons above referred to. It also upon congealing expands in its dimensions to an extent that renders it liable to injure the shell of a tooth.

In my improved form of the alloy . . . the adjustment of proportions diminishes the expansion, increases the hardness, and improves the color of the result, while at the same time conferring or contributing to the requisite plasticity.

I do not claim the production of fusibility, nor the use of cadmium for its production in combination with the other constituents named — [this claim having been secured in the former patent] — but I base my claim to improvement upon the production of plasticity, in connection with practical freedom from shrinkage and expansion, upon congelation, in this class of fusible alloys, in order to a result for a specific purpose. I do not speak absolutely in regard to shrinkage and expansion, but only so far as to meet the requirements in practice. (The shell of a tooth will bear with impunity some expansion of the filling, and the slight expansion and contraction which plugs of gold, tin, &c., undergo from transitions of temperature induced by hot and cold food and drinks, appear to do no harm.)

I do not claim that the quality of plasticity in alloys during a wide range of temperature has never before been produced and made applicable to certain uses. But I am not aware that it has hitherto been produced in fusible alloys to render them applicable to the purpose of filling teeth; or that the herein specified proportions of the ingredients mentioned have hitherto been used in the formation of alloys for any purpose.

What I claim as my invention and desire to secure by letters patent, is the herein described metallic composition for filling or repairing teeth, consisting of the ingredients herein specified, in the proportions thereof substantially as set forth, or proportions equivalent thereto as indicated, so as to produce a metal as described for said purpose.

In testimony whereof I hereunto set my name and seal this eighteenth day of February, A. D. one thousand eight hundred and sixty-four.

BARNABAS WOOD.

FORM OF LICENSE.

This License made and issued by BARNABAS WOOD of Albany, in the County of Albany, and State of New York, of the first part, in favor of ...., of the town of ......, in the county of ...... and State of ......, of the second part, Witnesseth:

That Whereas, letters patent were granted by the United States to the said party of the first part for an improved fusible metal for filling teeth, bearing date the 20th day of September, 1864, antedated the 4th day of September, 1864, and extending for the term of seventeen years from the date last named.

And Whereas, the said party of the second part, acknowledging the Novelty and Utility of said Invention, and the Validity of said Patent, is desirous of acquiring the right to use for dental purposes, in his own practice as a Dentist, in the said town of .... of the county and State aforesaid, the said Improved Fusible Metal, under the said Patent.

Therefore, this is to Witness, that I, the said BARNABAS WOOD, of the first part, for and in consideration of the sum of eight dollars, to me paid by the said party of the second part, the receipt whereof is hereby acknowledged, have sold and granted, and do hereby sell and grant unto the said party of the second part the full and free * right, license and privilege, under the said patent, to use, work, or apply in his Dental Practice, and for his own patients, the said Improved Fusible Metal for Filling Teeth, known as Wood's Plastic Metallic Filling, and to vend or dispose of the same, as so worked up and applied, in the said town of ......, and in no other place or places † for and during the term of five years, from the fourth of September, 1864; and the said party of the second part, is not to be estopped, molested, or in any way interfered with in the said use of the same, in the place and during the term aforesaid, by any party or parties to whom I, the said party of the first part, have assigned, or may hereafter assign, any right or interest under the aforesaid Letters Patent or any other: subject, however, to the conditions and provisions herein contained.

It is understood that this License, does not confer any right, power or liberty to manufacture the said Metal, nor to vend it except as worked up and applied as aforesaid, nor to purchase it, or imitation thereof, of any unauthorized vendor. And it is expressly provided, as a condition of the enjoyment of the right and privilege hereby granted, that the said party of the second part, shall neither himself infringe, in the manufacture, sale or purchase aforesaid, nor otherwise, in any manner aid, abet, or encourage infringement upon said Patent.

The right, privilege and license hereby granted, is not, nor is any part of it to be transferable or assignable by the said party of the second part; and it is not the intention to give to the said party of the second part, any right or privilege except what he shall personally exercise by himself or persons in his direct employ, in the said town of ...... and he is not to have power or right to in any way transfer or impart to another or others the right or privilege hereby granted. But upon due application for a transfer, and the payment of One Dollar towards the cost of the same, he, the said party of the second part, may have this License exchanged for another of like purport, scope and duration, made out to his order, either for another locality or another party; provided it shall be within territory not otherwise assigned, nor in negotiation for assignment.

This License, during and until the end of the term of five years for which it is granted, shall secure to the said party of the second part the refusal of a License in the said town of ...... unto and during the full end of the term for which said Letters Patent are granted; and it will be applied in part payment thereon if presented, together with the additional fee required, prior to the expiration of the aforesaid term of five years.

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* The "full and free right" is not to be confounded with an "exclusive right." The former does not prevent others from purchasing and exercising the "full and free" right of use in the same place, but the latter does.

† Those who have licenses for particular localities will be allowed the privilege, without hindrance or forfeiture, of working under their licenses in other localities in which there are not or shall not be licenses granted to other parties. But whereever and so soon as a license is granted all others must desist, unless they also take out a separate license or a transfer for the same place.

And if at any time hereafter, within the said term of five years, I, the said Barnabas Wood, of the first part, should make or invent, and obtain Letters Patent for any additional improvement upon the said Fusible Metal for the purpose of Filling or repairing Teeth, or any instrument or appliance for the purpose of facilitating the application or working of the same, then the said party of the second part, he having faithfully complied with the conditions herein provided, shall be granted the privilege to use for such purpose, in his dental practice in the said town of ...... such improved material, instrument or appliance, for and during the remainder of the said term of five years; reckoning from the fourth day of September, 1864, as aforesaid.

This License shall not be valid or of force unless received by the said party of the second part, under his own proper hand and signature.

In Testimony Whereof, for myself or legal representatives, I hereunto set my hand and seal this ...... day of ...... 18 ....

We find the following case reported in the Dental Register:

A PECULIAR CASE.

BY A. S. TALBERT, D. D. S.

August 12, 1863.—Filled the proximal surfaces of the right superior central and lateral incisors, with *great care*, for Miss. E., æt. about 19 years, of whose teeth I have long had the charge.

She had previously separated them with elastic gum, which, with the little filing necessary to remove the softened, fringed edges of the enamel, gave me good room to operate.

No unusual sensibility was observed in either tooth, though past experience had taught me to expect the pulp larger than in many persons of the same age. Neither saw nor heard anything from patient till the 6th instant, when she called with a younger sister. While in my office, I embraced the occasion to examine those teeth last filled; when, to my great surprise, I found in the lateral incisor a *black* line running nearly the entire circle of the filling, and between it and the edges of the enamel! Requested patient to again separate them with the elastic gum. Returned five days after; removed the filling, *en masse*, and found the *whole* surface of the cavity covered with a black pigment, very thin but black as any oxide, granulated and resembling the tartar that adheres so tenaciously to artificial teeth and plates—(I wish somebody would tell me how to get it off)—after heating them to mend, after they have been worn and broken.

Removed this lining with instrument and thorough washing. The dentine apparently about as sensitive as when the tooth was filled five months ago! Two little black specks remained at points in the cavity nearest the pulp, barely large enough to be seen with the naked eye. These were allowed to remain, least, in their removal, I might actually expose the pulp. The tooth was again filled.

Whence came this deposit? and what is it? Do these spots indicate minute openings which were invisible to the eye till blackened by a vitiated serum ejected from the pulp—a result of an inappreciable wound to its investing membrane? There has been no pain or apparent inflammation. The vitality is neither destroyed nor apparently impaired. This colored substance did not come from oxidation of the gold. It did not adhere to the filling, but to the bottom and walls of the cavity. How did it get there? Can not I *fill a tooth* so that even serum will not penetrate between the filling and the entire walls of the cavity?—(Will somebody be kind enough to tell me *how to fill a tooth?*) But if I had *perfectly filled it*, what would have become of this coloring matter? I remark, in conclusion, the filling in the *central* incisor *seems* to have been well done.

DISCOLORATION AROUND GOLD PLUGS.

Not to offer any conjectures with reference to the subject of the preceding article, we quote it because it seems to have some connection with certain phenomena or conditions to which we wish to call attention.

The discoloration of teeth around and beneath gold plugs, so commonly met with, is usually charged to the fault of imperfection in the operation—to the decay not having been thoroughly extirpated or the plugs not made secure against leakage. At any rate, it often occurs that subsequent to the operation a discoloration reveals itself through the enamel, frequently blue or black, sometimes gray or purple. We infer that incipient decay has taken place, and upon removal of the plug will probably find decay, though it may be very slight. But it sometimes happens that we do not find any perceptible disintegration or softening,—nothing but a black or purple powder or pigment underlying the plug, with, perhaps, a dark stain on the contiguous dentine.

Whence comes this black deposit, pigment, or stain? And *what is it*? Why found under *gold* plugs? Decayed dentine is not generally black, but more frequently brown, yellow or chestnut, and often white. In its incipiency it is usually light colored until blackened by subsequent agencies.

It is accounted for on the supposition of condensation of the vapor of the breath upon the foil as introduced, or to the imbibition of moisture between the gold and the walls of the cavity—in either case holding carbonic acid which finally deposits its carbon, etc. This seems satisfactory in some cases, but does not fully explain the purple or indigo hue. In other cases of imperfect plugging we do not find any dark deposit, but the decomposed dentine or disintegrated particles are brown, tawney or clay-colored, which upon the above explanation ought to be black.

There are some teeth which appear to contain an excess of organic matter. They are generally of a yellow-tinge—sometimes very bright almost transparent. In conditions favorable to decay, as where the saliva is glutinous and acrid, they are extremely subject to decay, the decomposed dentine remaining as yellow as before, or assuming a still deeper hue. In such cases there is liability to decay in contiguity with the plugs, particularly near the free edge of the gum, the softened dentine exibiting a golden hue so similar to that of the plug as to escape suspicion. Now, in such cases, we find no *dark* discoloration, no *black pigment* under the plugs, notwithstanding the conditions were such as might have led us to expect it. If the dark stain or powder before referred to be due to the deposition of carbon, why do we not find it underlying plugs or painted against the inner surface of enamel in such cases?

When teeth have been plugged with amalgam we may find the contiguous dentine stained black to a considerable depth, and not unfrequently the tooth blackened throughout its entire structure. We may suppose that the volatile mercury gradually eliminates itself and permeates the dentine, perhaps undergoing oxidation there, or that particles of the plug, becoming oxidated and dissolved are carried in solution through the tissue as a mordant. But, however explained, we do not refer the discoloration to carbonaceous deposits in these instances.

It is believed the fluids of the mouth in certain conditions may act upon gold; especially in connection with the dental tissue and other organic substances in a state of decomposition; and the slightest pellicle would suffice to leave its mark. The oxide of gold communicates to dental tissue a purple stain, (varying in shade according to other concomitants), and the more readily in proportion to its permeability, whether from disorganization or defective structure. Of course slight oxidation on the exposed surface of a plug would be likely to wear off, while it would remain and accumulate beneath.

In alluding incidentally to this subject, in our "*Dental Circular*" for May, 1864, speaking of the Plastic Metallic Filling, the following remarks were made..

"If the work be defective and decay go on it may induce oxidation. The decayed matter of a tooth is the most corrosive of agents upon metals. It will oxidate any of the base metals. Even gold itself is in some instances eroded by it, as evinced by the purple stain communicated to the dentine when decay goes on in contiguity with gold plugs. ......When oxidation thus takes place the decay will be stained according to the color of the oxide or salt which acts as the pigment—from gold purple; 'silver cement,' inky black; the Plastic Metallic Filling, light orange, &c."

This action upon the metals appears to be due to nitric acid, which is eliminated under certain conditions from the decayed matter, and which acts upon all the metals except gold, platinum, and some of the platinum group, and when mixed with hydrochloric acid, frequently present in the mouth, gives off chlorine, which attacks gold.

The oxides and salts of different metals having characteristic colors, serve the purpose of mordants; some to organic and some to vitrifiable inorganic substances, varying it is true according to the precipitant and to the peculiar constitution of the salt, but still characteristic in the main. Thus the salts of cobalt in solution give blue; of nickel, apple-green; of iron duller green. Oxide of zinc is white and forms colorless salts; bismuth white; cadmium yellow or orange; silver, brown, blackening on exposure to light; gold brown, purple or red; platinum green, &c., &c. Sulphuretted hydrogen, so liable to form in the mouth, throws down from the salts of most metals dark or black precipitates, but those of cadmium it precipitates yellow. Hence it is easily explained that this latter metal as a constituent in material for filling teeth, when oxidated, precipitated, and transfused through the decayed matter of a tooth or imbibed into the porous structure, should communicate its characteristic yellow hue, and that being a stronger mordant it should be able to modify the darker pigments peculiar to other metals with which it is associated.*

If these principles are applicable to the discoloration witnessed in the case of gold plugs they will serve to explain certain peculiarities which remain unaccounted for.

We have ventured these remarks with the view of enlisting attention to a subject worthy of it. Offered at the spur of the moment, without consulting authorities and references, they may be chargeable with some inadvertency, but it is hoped they will answer the purpose of stimulating to more elaborate inquiry.

VARNISHED COATING.

A correspondent sends us the following:

Dr. B. WOOD: Dear Sir,—I thank you for the copy of your Dental Exr. No. 1, just received. Here is a scrap for No. 2, if worthy of your notice. To some dentists who are now cleaning house and fixing up their rooms for the business season it may be acceptable.

To preserve Sheet Engravings, Lithographs, Photographs, Maps, Charts, etc., and render them susceptible of being easily cleaned without injury.

First *back* the pictures with *muslin* and *paste* (almost any kind of goods will answer), rub from the centre towards the edges, to prevent wrinkles; when about *half dry*, *tack* them *evenly over outside edges* of strong coarse-made frames — then clean the surfaces if need be with sponge, bibulous paper, &c., &c., as case may require — then coat the same uniformly with solution of Poland starch, and set them away to dry *slowly*. When *thoroughly dry*, give them a coat of "Demar varnish" — and they are ready for ornamental frames *without* glass. A *second* coat of the latter is an improvement, if possible.

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* The oxides of most of the metals act as poisons when taken internally in sufficient quantity. Hence they constitute the most active remedial agents in medicine. Of those which may be considered harmless in any quantity liable to be taken in the system as used for dental purposes may be mentioned iron, tin, bismuth, cadmium and zinc. Cadmium, which in consequence of its being comparatively less known, has occasioned some distrust in the minds of the uninformed, has, on account of its innocuousness been recommended for "tinning" vessels of copper used for culinary purposes, but its expensiveness forbade its use, while tin or zinc serve the same end.

Said varnish is very nice and useful in Laboratory for many purposes, and is easily made by disolving gum Demar in benzine, to workable consistency, adding about ¼ oz. balsam fir to one pint of aforesaid, to toughen and make durable for pictures. Keep it corked for use. Lay it on as *uniformly*, and *rapidly* as possible with a *fine flat* brush, drawing *straight light* strokes over from side to side — then *still lighter*, from end to end, alternate *quickly* and leave the work in a *horizontal* position until the varnish sets. For many purposes the varnish is better *without* the balsam fir, as it dries quicker and harder.

Yours Truly.

A TROUBLESOME PERSON IN CHEMISTRY.

A writer in the North British Review tells an amusing story illustrative of the unwillingness to receive new truths which is characteristic of some minds:

Long after Sir Humphrey Davy became famous in London circles, as the Young Chemist, who attracted larger audiences to his lectures at the Royal Institute than perhaps any purely scientific man had ever done before, there was a certain professor of chemistry in the college at Aberdeen, who systematically passed over his discoveries. Some bolder spirits among the doctor's colleagues at length aroused his attention to the subject; and the professor was compelled to take notice at last of Davy's great discovery of potassium. Accordingly at his next lecture he began by saying: Gentlemen,—Both potash and soda are now said to be metallic oxides—the oxides, in fact of two metals called potassium and sodium, by the discoverer of them, one Davy in London, a very troublesome person in chemistry.—*Scientific American.*

POPE wrote that,

"An honest man's the noblest work of God;"

But Fletcher, the dramatist, who lived and wrote before Pope, said more justly,

"An honest *wise* man is God's noblest work."

EDITORIAL.

We are not able to offer in our present issue as great a variety of topics as we could have wished. Finding the space set apart for communications not likely to be fully occupied, and not being prepared with other matter, we have devoted more to "the Filling" than was contemplated. There is indeed much yet to say upon this subject, of interest to those who use the material, more especially in respect to the best mode of manipulation so as to secure creditable operations, but we would cheerfully waive this to give place for anything new and useful offered the profession through our columns; or if we have anything deemed indispensible to communicate will freely give additional room. It occurred that this might be more satisfactory than merely to reiterate what may already be found published in other journals on the usual topics.

Since, then, our space is rather limited, and our circulation confined mostly to those who wish information concerning the New Material and mode of practice, we have concluded to conduct the Journal for the remainder of the present year more directly with a view to their interest, —under its present title.

After this year, should the profession seem disposed to favor its continuance, at *their expense*, it will be sufficiently reticent in relation to business matters. Meanwhile, we shall cordially welcome and *make room for* whatever of interest to the profession may be offered on any subject. Those who have improvements are invited to communicate them in their own way, as they know best, and, consequently, can best explain the nature and advantages of their own improvements.

THE TEETH AS OBJECTS OF MEDICAL AND SCIENTIFIC INVESTIGATION.

We reproduce, as a "Leader" for the present No., an article on "The Teeth, as Objects of Study," from the *So. Jour. of the Medical and Physical Sciences*, believing the subject to be one which ought to be enforced, and not being prepared to undertake any improvement in the treatment of it. As this addresses itself to medical men and students outside of our specialty, we propose to follow it up in the next No. with a presentation of the claims of Medical Science upon the Dental Profession.

NERVE INSTRUMENT.

We received a short time ago from Mr. R. B. Sutton of Guilford, Conn., some very fine nerve instruments. They are for the removal of pulps of teeth, and consist of very finely finished five sided broaches, barbed very perfectly and uniformly on their corners. They are the best finished instruments of the kind we have seen. No dentist should be without them. In a few experiments we have made with them, we find they *bring away* anything with which they come in contact. We understand they will be for sale at the dental depots.—*Dental Register*, Jan., 1865.

We concur in the belief that these nerve extractors of Dr. S. will become quite indispensible to the operator. The quality of the steel or the peculiar care in tempering or working it is such that the broaches possess a surprising degree of *tenacity* and are in no danger of breaking. They taper to a hair-point, and will reach and bring away the smallest filament·

NEW BURR-DRILL.

Dr. J. N. Scranton of Bennington Vt., has gotten up an improved instrument which is designed to answer the purpose of Burr, Drill, and Excavator, and capable of being sharpened without drawing the temper. The same principle is applied in making his pivot, and nerve or pulp cavity drills. We understand he does not manufacture them for the profession, and therefore has no pecuniary interest in the matter, but leaves it to the inclination and benefit of instrument makers who may chose to profit by the suggestion.

HARD RUBBER MALLET.

A few days ago we had an opportunity to examine a most elegant and useful article gotten up for the profession by Prof. Atkinson, which in weight, solidity and beauty would seem to unite all the requisites. We are pleased to see that the Prof. does not esteem these minutiæ unworthy of his attention, since the importance of them will be seen at once by those who employ this instrument. Certainly no one is better qualified to devise and direct its construction; and the finished instrument is proof that the making of it has been entrusted to skilful artizans.

Some may have been led to infer that these mallets are gotten up for gratuitous distribution—to the *profession*—on the "ethical" principle of "*freely give*"; but this would be riding a "*free* horse" rather too hard!

The use of the mallet is rapidly coming in favor; by many it is considered indispensable to first class operations; every real improvement, therefore, in the instrument itself or the manner of using it is a boon to the profession.

For remarks on the value and manner of using the mallet we refer to a practical article in this number of our journal, by an operator eminently successful in this mode of operating, whose opinion is entitled to confidence.

THE NEW YORK STATE DENTAL DELEGATION.

This Association organized in the city of Troy on the 4th instant. It was very well attended —much better than was to have been anticipated considering the impromptu manner of calling the preliminary meeting,—and, although a little frigid at the outset, yet, when the main objects in view became understood and the means of attaining them took definite shape, it passed off with the greatest enthusiam. A number of counties were represented, including Albany, Rensselaer, Saratoga, New York, Duchess, Ulster, Schenectady, Herkimer, Montgomery, Oneida; and letters from others were received tendering good wishes.

The Delegation is formed upon the representative plan, after the model of the American Dental Association, but, instead of limiting the number of delegates from local societies, provides that they may send all their active members, requiring only a credential of membership from the president or secretary. Although called a STATE organization there is nothing to prohibit to active membership delegates from societies out of the State — and doubtless any such would meet a cordial welcome. A large representation is counted upon from the New England States.

The restriction to delegates from local societies appears to have been made with a view to stimulating dentists every where to organize in such bodies; but no requirements are interposed as to the number of members composing a society:— if but "two or three are gathered together" in the name of Dental progress, there is nothing to prevent the reception of each one. Dentists in isolated localities should unite themselves to the nearest local society.

But we do not think the Delegation will stand upon these points, at its ensuing *first regular meeting.* The preliminary meeting admitted all present to membership who subscribed to the constitution, as it must of necessity have done for a basis to start from; and we confidently believe there will be no disposition to discriminate against worthy dentists who may not have been able in so short a time to start local organizations.

We would be glad to make room for a report of the proceedings, but we made no report ourself, and our journal must go to press before the official report could be received.

The Delegation adjourned to meet in the city of Albany the Thursday preceding the last Tuesday in July, which brings it on the 20th of that month.

We clip the following notice from the *Albany Daily Express:*

STATE DENTAL ASSOCIATION.—A large meeting of dentists was held in Troy on Tuesday. Dr. Perkins of this city presided, and Drs. Andres of Troy, and Winne of this city acted as Secretaries. The meeting resolved to form a State Dental Association; adopted a constitution and by-laws, and elected the following officers, to hold until the annual meeting, which takes place in this city in July:

President—J. A. PERKINS, ALBANY.
1*st. Vice President*—L. C. WHEELER, TROY.
2*d. Vice President*—J. M. CROWELL, NEW YORK.
Corresponding Secretary—B. WOOD, ALBANY.
Recording Secretary—S. J. ANDRES, TROY.
Treasurer—S. D. FRENCH, TROY.
Executive Committee—W. H. ATKINSON, NEW YORK; J. C. AUSTIN, ALBANY; W. A. PALMER, POUGHKEEPSIE.

BUSINESS NOTICES.

THE SEVERAL NOS. OF THE FILLING.

The change made in the Nos. of the Filling was noticed in the *Circular and Examiner* for January, p. 29, by which it will be seen that while Nos. 2, and 3, remain essentially as at first, the form corresponding to that formerly stamped No. 1, is now stamped No. 4, and a new and improved No. 1, takes its place. By this arrangement the Numerals will suggest the relative characteristics of the forms they represent,—for instance, that No. 2 is intermediate between Nos. 1 & 3, in respect to the peculiarities of either, and so on. The proportions are adjusted so that an accidental mixture of any two or more Nos. shall not develop objectionable qualities.

In preparing the metal it became necessary to secure certain essentials in each and all of the Nos.—as in respect to hardness, freedom from shrinkage and expansion, and fusibility. It was found that, beyond a certain point, improvement in certain qualities was attained only to the detriment of other qualities. Thus, we may produce a form still harder than No. 4, but requiring too high a heat to work it, and contracting on congealing &c.

Some have objected to the putting out of different Nos. as complicated. It might as well be objected to having different Nos. of gold foil. They all have their place, either to suit different modes of operating, or different cases: any one can be used with more or less facility in any case; and an operator who has become skilled in the use of one can use all.

No. 3 is most generally preferred, and accordingly this is sent in all cases where the No. is not specified in the order. But some prefer No. 2, others No. 4, and some who have used Nos. 2 or 3 have expressed a preference for No. 1.

If used at the proper state of plasticity they will all *work* at nearly the same temperature. No. 1, is however a little more fusible than the other Nos , but requires some dexterity and practice to seize the proper moment of applying it. No. 4 remains plastic and can be worked at a higher temperature than that at which it ought to be applied, and therefore is not so safe in the *hands of beginners*, except in small or medium cavities.

The difference between any two Nos., taken in order, might hardly be recognized at once—but taking alternate Nos., it would be more manifest, and between the first and last too obvious for mistake.

I would recommend having two Nos. at hand—either the two odd or the two even Nos,—Nos. 1 and 3, or Nos. 2 and 4.

As half ingots are put up, purchasers can order half an ingot of any two or more Nos., and thus determine for themselves which they prefer for general use.

WEIGHT AND POSTAGE.

The Metal is cast into thin ingots or bars about one twentieth of an inch in thickness, and cut by weight three-fourths of an ounce Avoirdupois. There is a slight difference in the capacity of some of the moulds so that some bars are a little thicker than others, and of course when cut to weight proportionally shorter.

Owing to the great plasticity of the Metal, it is difficult to turn out the ingots as thin as desired perfectly entire. This has in some instances afforded occasion for the charge that the ingots were "not full,"—meaning full in weight. But to guard against error on this side, they are weighed out a little *over weight*, and should any be inadvertently cut short, they are made into parts of ingots or worked over.

But to provide for the many cases of neglect to enclose the postage, and not to have little dues of this sort standing, a certain number of ingots are made short in weight to the amount of the postage. It has been suggested that I ought to make all of this latter weight, and mail them free of postage; and as this gives an even two-thirds of an ounce Troy, I have concluded to do it, as soon as the lot now out is sold, so as to make place for the change. Meanwhile those who send the postage will get three-fourths of an ounce Avoir. (and a little over); while those who do not send postage will get three-fourths of an ounce Avoir. *less the postage*—or just two-thirds of an ounce Troy.

PRICE AND PROFIT.

Although there has been considerable misconception from the first in regard to these points, it was thought it could be left for correction to the general intelligence of the profession; but it appears that more opposition and ill feeling have been successfully fomented on this issue than any other.

Those, however, who use the Filling most largely do not object to the price; indeed complaint is rarely preferred by *bona fide* purchasers, but usually by third parties and those who have been deterred on this ground from making purchases. It is put in sufficiently depreciatory form — often with a provokingly willful obliviousness in regard to the real constituents. So much for a " little piece of solder," made of " tin, bismuth and *antimony*;"— sometimes it is " *zinc*" instead of " antimony," sometimes " copper," occasionally a mixture of all:—(though it is or ought to be well known that neither copper, antimony or zinc, is contained in the metal, and that their presence even in small proportion would impair its essential qualities). At any rate, it is what " any one can make by simply melting the metals together," at prime cost of the crude materials. This impression implies a misconception in regard to the materials, as obtained in commerce, and the metallurgic processes necessary to fit them for use, or an indifference to therapeutic considerations, which ought not to exist in our profession. We shall have something on this hereafter. Suffice here, that such readily improvised alloys from crude metals are unfit for *dental purposes*; and any one known to have used them will suffer in public estimation.

As to " profit" on material: From the result of a comparative estimate made when fixing the price for introduction into market,—on a specie basis — taking the prime cost of the materials as sold in the trade, it appears that to realize the same profit as is made on tin foil the Filling ought to sell at about $15 an ounce; if the same as upon the gutta percha stopping, $25; if the same as upon oxichloride of zinc, *over* $200 *an ounce!* If it is said that the cost of preparing the materials must be considered, I will venture that in respect to tin foil, to say nothing of the rest, the cost of manufacturing it will be more than counterbalanced by the cost and loss of refining the several constituents of the Plastic Metallic Filling. I do not say that tin foil yields too large a profit — those who make it know best what they can afford it for, though if any one house had the exclusive sales, doubtless it could be manufactured at one half its present price: but for a *fair compensation* the " Filling" ought to have been $5 in specie instead of $2, with three times the sales. Still, with the monopoly and a *fair show* I can afford it at $2 (in gold), and *if the profession will permit me to perfect and extend* the processes for preparing it, I think I shall be able to put it still less. I am satisfied that there is no one in this country who could make it at as low rates, provided they used the same ingredients properly refined. The spurious substitutes made of the old fusible metal and mercury, are all impure. If heated above 400 degrees Fahr. they give off arsenical fumes, as readily detected by the garlic odor. No conscientious operator will use them, except it be for laboratory purposes.

PRICE FIXED UPON A SPECIE BASIS.

$3. IN PRESENT CURRENCY.

I have been obliged to put the price of the Filling up to the old standard, viz., $2 *in gold* or its equivalent.

Some who have heretofore obtained it at $2, in paper currency worth less than half the face of it, may now object, particularly since our currency has advanced to two thirds its nominal value; but the case is imperative.

For over two years I have maintained it at the old *figure* instead of the old *price*, when that figure should have been from $3.50 to $5.50, and most of the time over $4. The price of instrments, though advanced, has been kept at a low figure, having from the first been offered at rates for which manufacturers assured me they could not be afforded,— that they ought to retail at from $4.50 to $6 a dozen. Subsequently, as everything went up, they were put at $4.50 for the best style — but advanced only in proportion to the increased cost of manufacturing.

The FILLING was not advanced, partly because so long a deranged state of the currency was not anticipated, but chiefly on the *expectation* that purchasers would in return respond cheerfully to the conditions in respect to licenses, and as an inducement for them to do so. It was a "reckoning without the host" — a "bad speculation." Few responded. Many stand ready to fight it to the death first — crippling the supposed "enemy" as much as possible ere they "fall in the last ditch."

Why, then, do I not bring suit at once, since the law allows three times the amount of damages?

Because, 1st. Receipts for Rights, good until 4th Sept. 1865, being out, it would only be necessary to buy one at the last moment in order to turn suit and costs.

2d. Since it appears that some have managed to obtain supplies of agents contrary to the conditions, it was thought well to extend to all the free use for trial until the period when the patent could not be evaded by any with impunity. 3d. and finally; legal processes are slow in their returns and do not serve the present occasion. The material must pay its own way as it goes and not be a tax in means as well as labor. Whatever is made by it is applied towards improvements or other means for the common benefit, and the Profession must look to that.

But if I could afford it then, why not now? And "if" — yet the riddle is easily told. It was done then by working up old stock seasonably provided against emergencies. Thanks to hostility to patents, that the stock did not give out before! Thanks that the times and terms are in season for the new supply! If nothing was gained, nothing has been lost, taking the entire "speculation." All comes around right for a fresh start.

Such being the state of the case,— somewhat elaborately stated for a "business notice"— nothing remains but to adhere to a specie standard, and proceed on sure data.

The price is accordingly fixed at $3 in present currency,— equal to $2 in specie,— assuming the relation between the two will not soon vary far from this; or, if it should, the ingots must be made to correspond in weight, the figure remaining at $3. To those however who have already paid for licenses (for not less than five years) under the new patent, or may procure them by the 4th of Sept. next, it will be put at $2, as heretofore advertised.

THE JOURNAL.

The "Dental *Circular*" was gotten up exclusively to communicate information in regard to the Plastic Metallic Filling. The *Circular and Examiner* was issued partly for this purpose, and partly for the defence of ethical principles, the encouragement of invention in our specialty, and the diffusion of general professional information. After the 1st No., it was contemplated to drop the title *Circular*, and devote the *Examiner* to general subjects, waiving all reference to matters in any way complicated with pecuniary interests. But as this could not be done at once, the full title of the work will be retained for the present year, preferring that so far as it partakes of the nature of an advertising medium should be fairly announced in the title, that none need be misled by it. But it is hoped this will not give rise to misconception on the other side. There is a difference, too, between advertising a thing and detailing the conditions and modes of its employment, &c.

THE FIRST, OR JANUARY NUMBER.

The "*Dental Quarterly*" in a really friendly notice of the "*Circular and Examiner*," says: "The first number appears to be devoted almost wholly to Wood's Metal, but when certain things are taken into consideration this may be excusable." —The *Quarterly* was probably thinking of the "Dental *Circular*" for May as the "first number"—since the 1st No. of the "*Circular and Examiner*" out of 32 pages contains less than ten relating to the material referred to, and twenty-two pages devoted to general topics, mostly in small type, equal to twice the amount in ordinary journal print; while the *Dental Quarterly*, published at the same price, devotes from twenty to twenty-four pages to general matter and an equal number to the Publisher's advertisements—which is excusable, and must be so long as journals cannot rely upon subscriptions for support.

LEARNING TO OPERATE WITH THE FILLING.

Those who undertake to operate with the Filling are earnestly requested to provide themselves with proper instruments and go at it prepared and determined to excel. With ninety nine out of a hundred it is a sheer waste of time and money to be buying and tinkering with a little material for "trial," by fits and starts, without instruments or earnestness. It is doing injustice to the operator and his patients, as well as to the material. To use it only "occasionally," is to *never learn* its use. It should be used daily,—at first upon extracted teeth until you learn its proper *working* condition, then in simple crown cavities, and then, when confidence and skill are acquired, in the more difficult.

As to those who only want a little to play pranks with, by which to prejudice their patients, I have only to say, it will eventually recoil upon themselves; it is hoped the restrictions soon to be enforced will afford some protection against abuses of this sort.

GRANTEES UNDER THE FORMER PATENT.

Those who have Grants under the patent of 1860 may exchange them for licenses under the late patent, on the terms proposed in the *Dental Circular and Examiner* for January, if accepted by the 1st of July 1865, when the offer will close. All such have been subsequently notified by printed letter, and if they neglect the offer it is hoped they will not make it an occasion of ill feeling. It is not intended to stop their using the Filling during the term for which the old patent runs, but they cannot claim interposition in their behalf against others obtaining an interest in the new patent, unless they avail themselves of the only means of legal protection, nor the advantages now or hereafter extended to regular licensees.

USING, ASIDE FROM A SPECIFIC PURPOSE.

Some dentists labor under the impression that if they use the Metal for making plates, mending rubber work, or any thing except *Filling teeth*, they are not liable for infringement. But the patent is for a composition, not process or method: and the law allows that the use of substantially the same composition or a mere imitation of it, for whatever purpose, is an infringement. It is the material, not the purpose or mode of use, which is patented. An inventor has to show some purpose for which a thing is useful (as proof of utility) and if it be new — and also useful for any purpose distinctly specified, the patent will hold good to whatever other purpose it may be adapted or applied.

FORFEITURE.—It is a settled principle in law that "the licensee can use under the license only by complying with the conditions, so that his use, aside from the license, is an infringement."

RECEIPTS FOR YEARLY RIGHTS

Will not apply in payment towards a License after the 4th of Sept., 1865, and must be sent in to this office prior to that date, together with the balance of the fee required, to be accepted. The endorsement on each is sufficiently explicit, viz; "This Receipt will be accepted in payment towards a license for five years, if presented to the undersigned, together with the balance of the fee, before the 4th of September 1865." The holders of them, who shall not have secured their licenses by that time, and who continue using the material thereafter, will have forfeited all claims by infringement. If lost or mislaid it is the owner's loss. Some have demanded credits or material on the strength of Receipts which they claim to hold but fail to present, when they ought to know that if allowed they would have to be paid or credited *again* upon presentation.

DOING BUSINESS BY MAIL.

The Post Office affords a very ready and convenient business medium, attended with little risk. The losses incurred are in most cases traceable to the negligence of the parties making remittances — letters are sometimes so illegibly addressed that it is difficult to divine how they should have reached their destination. To assume the risk of remittances would but encourage such negligence as well as offer temptation to dishonest claims. But the Postal Money Order system, lately adopted by the P. O. department, obviates the difficulty in the case of small sums, as bank checks do in larger ones. It becomes all to acquaint themselves with these business facilities, and the sooner the better. It is as easy to *buy* at the post office, by depositing your order in it, as any where, though you have to await return mail for the goods; only direct your letters correctly and give your address in full. (For regulations as to TRANSPORTATION, &c., see *Dent. Cir. and Examiner* for Jan., pp. 29-30).

INSULATED PLUGGERS, PATENTED FEB. 28, 1865.

These pluggers are made with metallic bulbs that may be more or less perfectly insulated, so as to retain heat a greater length of time.

These bulbs and points may be silver, german silver, Albata composition, etc., as desired. A set costs from $6 to $20, according to style and material.

A full description of these pluggers will be given in our next number.

LICENSEES UNDER THE NEW PATENT.

[This List does not include those who have Grants only under the old patent, nor those who have merely Rights of use for Trial under the new.]

Dr. Albee, L. W., Charlestown, N. H.
" Allender, Wm., New London, Ct.
" Atkinson, Wm. H., New York City.
" Austin, John C., Albany, N. Y.
" Avery, Otis, Honesdale, Pa.
" Bancroft, R. S., Romeo, Mich.
" Barbor, J. G., LeRoy, N. Y.
" Bardeen, A. V., Hamilton, N. Y.
" Batchelor, W., Milwaukie, Wis.
" Beals, J., Greenfield, Mass.
" Bidwell, Julius A., Sturgis, Mich.
" Bonwill, Wm. G. A., Dover, Del.
" Bowman, G. A., Canton, N. Y.
" Brown, G. B., Danville, Pa.
" Brown, James, Rochester, N. Y.
" Clippinger, S., Madison, Ind.
" Cook, J. N., Rusiaville, Ind.
" Cunningham & Budd, Attica, Ind.
" Davenport, J. N., Northampton, Ms.
" Davis, C. G., New Bedford, Mass.
" Dean, James C., Chicago, Ill.
" Dewey, D. J., Washington, Iowa.
" Dixon, J. A., New York City.
" Dodge, Neh., New York City.
" Doty, A. W., Windham Centre, N. Y.
" Draper, Jas. R., Troy, N. Y.
" Dunlap, J. L., Chillicothe, Ohio.
" Dwyer, J. H., Greenfield, Ohio.
" Edington, W. F., Geneva, N. Y.
" Fitch, C. P., New York City.
" Foster, E. W., Shelburne Falls, Ms.
" Fox, L. T., Cobleskill, N. Y.
" Freeman, S. A., Buffalo, N. Y.
" Garretson, J. M., Philadelphia, Pa.
" Gifford, J. C., Westfield, N. Y.
" Gildea, B. M., Louisville, Ky.
" Green, Jesse C., West Chester, Pa.
" Hale, N. G., Windsor, Vt.
" Hartman, A., Murfreesboro, Tenn.
" Haskell, T. J., Fulton, N. Y.
" Hemenway, J., Athol Depot, Mass.
" Higgins, T. M., Havana, Ill.
" Holden, Daniel, Ware, Mass.
" Hosier, Wm. L., Chagrin Falls, O.
" Hunt, P. G. C., Indianapolis, Ind.
" Jackson, Gam'l., Winona, Minn.
" Jarvis, O. A., New York City.
" Leach, L. R., White's Corners, N. Y.
" Martin, C., Frederick City, Md.
" McCalla, John, Lancaster, Pa.
" McDonnels, G. B., Girard, Pa.
" Melotte, Geo. W., Pottsdam, N. Y.
" Metcalf, John T., New Haven, Ct.

Dr. Nichols, G. W., Davenport, Iowa.
" Northrop, A. L., New York City.
" Ohio College of Dental Surgery.
" Overholser, D. L., Lockport, Ill.
" Pease, Wm. A. Dayton, Ohio.
" Pierce, C. N., Philadelphia, Pa.
" Pennsylvania Col. Dental Surgery.
" Perry, F. M., Barton, Vt.
" Porn, R. J., Lexington, Ky.
" Priest, A. N., Utica, N. Y.
" Randall & Johnson, Farmington, Me.
" Reading, Lewis E., Trenton, N. J.
" Rice, L. H., Johnstown, N. Y.
" Riggs, J. D., New Haven, Ct.
" Robinson, H. A., Foxcroft, Me.
" Robinson, S. M., Watertown, N. Y.
" Rossou, B. F., Troy, Ohio.
" Roy, Enos G., New York City.
" Sayles, A. P., Lyons, Ohio.
" Scott, H. R., Franklin, N. Y.
" Scott, J. O., Champlain, N. Y.
" Scranton, J. N., Bennington, Vt.
" Shatto, I. N., New Bloomfield, Pa.
" Sheffield, W. W., New London, Ct.
" Sheldon, John, Hudson, N. Y.
" Shoemaker, W. B., Newville, Pa.
" Sherwood, Valentine, Rondout, N. Y.
" Sloan, P., Canajoharie, N. Y.
" Smith, Jos. H., New Haven, Ct.
" Stephens, Jas., New York City.
" Stone, A. A., Sinclearville, N. Y.
" Strong, Elias, New Haven, Ct.
" Suesserott & Platt, Chambersburg.
" Sutton, Robert B., Gilford, Ct.
" Thompson, S. K., Poultney, Vt.
" Truman, James, Philadelphia, Pa.
" Vandervort, R. & Son, Pittsburg, Pa.
" Van Dyck, C. W., Lebanon, Ohio.
" Walton, C., Philadelphia, Pa.
" Waters, Geo. H., Waterbury, Ct.
" Watt, Geo., Xenia, Ohio.
" Welch, S. P., Lansingburg, N. Y.
" Wheeler, Lewis C., Troy, N. Y.
" Whitmer, S. H., Landishburg, Pa.
" Whitney, G. R., N. Bridgwater, Mss.
" Williams, J. B., Monongahela City.
" Williams, Jacob L., Boston, Mass.
" Winne, W. F., Albany, N. Y.
" Woolworth, J., New Haven, Ct.
" Wood, J. S., Albany, N. Y., and Lansing, Mich.
" Woodward, C. N., Ripley, Ohio.
" Young, H. H., Troy, N. Y.

THE

DENTAL CIRCULAR AND EXAMINER.

VOL. I.] ALBANY, N. Y., JULY, 1865. [No. 3.

CLAIMS OF THE MEDICAL SCIENCES UPON THE DENTAL PROFESSION.

That Dental Surgery, considered as a Science, embracing a knowledge of the nature and treatment of a part of the human system, is truly an intregral part of Medicine, would naturally be suggested as self-evident; and that an acquaintance with the medical sciences is essential for its proper cultivation, would seem to require no demonstration. But since, in *practice*, this specialty has been disconnected from medicine, being moreover, frequently exercised without an adequate knowledge of the sciences which go to constitute the latter, both of which circumstances have tended to convey an erroneous impression in regard to its true relationship and dependence, we think it not inappropriate to offer a few remarks under the above caption.

We need not dwell upon the importance of Anatomy and Physiology. Every one must, upon a moment's reflection, perceive that they are absolutely indispensible to scientific dentistry. That the human frame is but a congeries of organs, mutually dependent upon each other, that these are but so many parts, making up in the totality, the complicated machinery of the whole, and that parts the most remote, are connected by sympathies the most intimate and indissoluble, will suffice to show that a correct understanding of any part must comprehend, and be based upon, an acquaintance with those parts with which it is thus connected—that a knowledge of the structure and functions of the organism as a whole, is essential to a full comprehension of any class of organs; that, in short, the anatomy and physiology of the general system must be studied, in order to learn the nature, relations and functions of the dental system. This is conceded by all scientific dentists, whatever may be their differences of opinion in regard to some of the other medical branches.

The fundamental or general Principles of Medicine are equally indispensible, as guides in special treatment, and in no department more so than in that of Dental Surgery—a position which is also beyond question. If this be so, it should follow that those branches from which such principles have been evolved, are also essential. The principles of medicine, properly so called, can be adequately acquired only by a survey of the details of the several branches of the science. Indeed the chief utility of medical schools and medical journals, consists in the inculcation and elucidation of principles *by means* of such details; and it were as impossible to communicate the former intelligibly, or impress them upon the mind, without demonstrations derived from the latter, as to teach mathematics by a general statement by the "rules" which govern in the solution of its various problems.

But without designing an argumentative discussion, we propose merely to suggest some of the claims and advantages of those medical branches which appear to have been most neglected by the dental profession.

The science of *Chemistry* eminently deserves the attention of the dentist. In view of the advantages which might naturally have been expected to flow from its cultivation, no branch of medicine has been more generally underrated, on the part of the profession, than this. Until recently, it had not a place even in the institutions proposing to teach a thorough collegiate system of dental science. Yet chemistry is one of the fundamental bases of all medicine; it lies at the very foundation of every specialty, and of none more strictly so than of this.

The claims of chemistry upon the dental surgeon, present themselves in two points of view: first, as means of acquiring a correct knowledge of the principles of his science, and secondly, as a guide in the practical application of those principles.

First. A knowledge of chemical forces is essential to a comprehension of vital phenomena. This is the key which admits us to the hidden recesses of organized structure—the light which reveals to our inspection the secret processes of life. Chemistry is inseparably allièd to physiology; without it, the latter, as a science, could scarcely exist, since it is the province of this to examine, first, into the nature of the chemical elements which go to constitute and sustain organized tissues, and, secondly, to investigate the phenomena exhibited by such organizations,—phenomena not only analogous to those which are purely chemical, but intimately blended with, and dependent upon them. Chemistry has to do with all the vital processes and functions, from the development of the germ-cell to intellection. For example, the first germ is but the condition by the means of which chemical elements are brought into combination, so as to produce an organized structure. *Nutrition* is the result of chemical affinities between the component parts of the system and the nutritious particles of matter derived from food, these particles having been prepared for introduction into the circulation, and through it to the remotest tissues, by the *chemical* process of *digestion.* The function of respiration is a means for promoting chemical processes by which the blood in the lungs is freed from its carbon and re-vitalizèd, as it were, by a supply of oxygen. The heat of the body is the result of chemical changes going on in it; and finally, the operations of the brain, whence results the manifestation of mind, are dependent upon the stimulus of chemical elements, and upon changes, the result of chemical forces. Of course, the physiology of the dental organs cannot be understood without a knowledge of chemistry. The germination, ossification, and development of the teeth, must be studied with reference to chemical laws.

Secondly. Chemistry is indispensable to a proper knowledge of the diseases and treatment of the teeth. Its claims in elucidating the principles of pathology and therapeutics, are the same upon the dentist as upon the physician. Moreover, the prevailing structural disease of the teeth, dental caries, which is so destructive to these organs, and to which they are so universally liable, is of a directly chemical nature, the result of chemical action. To chemistry we must look for information in regard to the character of substances taken into the mouth in the shape of medicines, food, beverages, &c., whether injurious to the teeth or not; and as a guide and monitor in the use of certain applications, as dentifrices, lotions, &c., and also in the preparation or discovery of hygienic and remedial means capable of counteracting the *causes* of dental decay, (as found in a vitiated condition of the secretions of the mouth, and foreign matter undergoing decomposition in it,) or of arresting, to some extent, the disease when already induced. This is a fruitful, though much neglected field of inquiry, and if cultivated in a scientific spirit, cannot fail to yield important results. Much as is doing towards perfecting the surgical and mechanical branches of our art, dental pharmacy is, perhaps, destined to achieve more in preventing dental disease than operative dentistry in effecting its cure, or in making reparation for its evils.

A knowledge of chemical science might also lead to discoveries resulting in simpler, and, at the same time, more perfect modes of operating.

For example, the plugging of a tooth with gold, is often quite a complex operation, and, to the patient, a very tedious one, requiring, as a general thing, an hour or more, and sometimes several hours, for its faithful performance. If provided with a remedy capable of permeating and combining with the affected portion of the tooth, or in any other way arresting the disease, which is now obviated only by the most careful extirpation, often including a considerable portion of the healthy and solid dentine, much of this labor could dispensed with. Suppose, in addition, we had a vitrifiable or *petrifiable* material, at first plastic, to admit of being moulded to any part of the cavity, but readily hardening without contraction or expansion, presenting a compact and resisting surface, sufficient for mastication, and altogether unaffected by the secretions of the mouth, &c., it would still further simplify and facilitate the operation. This is a desideratum which many have sought, though vaguely, to supply; and to judge from advertisements, one would suppose the acquisition had long ago been realized. And so perhaps it might have been, had it been sought with concert of action by the scientific in our profession. At least they could not but have obtained some nearer approximation than the worthless compounds in the shape of amalgams and cements, mostly the result of ignorance or cupidity, which, from deleterious qualities, or inability to resist chemical action, have been productive of much harm and little good. That the object is attainable by the proper means and endeavors, can hardly be doubted ; but it is only by a knowledge of chemistry that success is to be expected or evil avoided in undertaking such researches, or that a proper discrimination can be made in regard to their results.

The chemistry of the metals, including the laws of galvanic and electrical action and affinities, should receive its full share of attention. It is through this alone that mechanical dentistry can be elevated from a mere trade to a scientific art. Something has already been done in this respect. Artificial teeth are being united to gold plates by means of a fusible silicious cement, having an affinity for both; a process which should greatly curtail the manual labor necessary in this branch.

It has also been proposed to cast gold plates by the electrotype process, thus bringing the operation of nature into service in preparing and moulding the metal; experiments in which have been attended with some success, and the project is considered by no means impracticable.

Remarks similar to most of the preceeding, would be applicable in elucidating the claims of *Materia Medica* and *Therapeutics*, for it is incumbent upon the dentist to know something of the nature and action of medicines, with reference to their direct influence upon both the general system and the dental apparatus, as well as indirectly upon the latter through the medium of the former.

Of *Surgery* it need only be said, that the mouth, which necessarily comes under the treatment of dental practitioners, is subject to diseased conditions similar to other parts: to inflammation and its consequences, to ulcers of various kinds, abscesses, tumors and excrescences, whether malignant or benign; also to affections of the bones of the maxilla and palate, to diseases of the maxillary sinus, &c., all of which require surgical treatment.

The value of "*Theory and Practice*" of Medicine would, perhaps, appear less evident. But why should it, when the relations and sympathies of the teeth and mouth are so obvious, and when dental diseases are found so frequently blending themselves with, and simulating those of the general system? It is a matter of every day occurrence, and a sad comment upon the lack of medical information, that nervous disorders are mistaken for and treated as affections of the teeth. Fevers occurring during the period of dentition, even though entirely of constitutional origin, may present symptoms so similar to those of teething, and *vice versa*, as to make it difficult to distinguish between the two; a fact which, as such cases come generally under the care of physicians, shows the claims of Dental Science upon the latter. Pain about the teeth and face, though originating, by sympathy, from irritation in other parts, or only manifesting itself as the symptom of some general affection, is usually sought to be alleviated by dental aid. The consequence of ignorance on the part of the dentist in such cases need only be alluded to. That intractable and inscrutable, but by no means uncommon malady, Facial Neuralgia, or Tic Doloureux, has led unwittingly, to the sacrifice of thousands of teeth; to say nothing of the far more frequent cases of erratic forms of neuralgia, the transient character of which may have but served to justify, to the mind of both dentist and patient, the needless operations restored to.

But without going into a detail of examples, let it suffice to say, that the pathological relation of the teeth with the general system, and also with special organs, is so complicated that the teeth may involve the constitution, to a greater or less extent, in consequence of their diseases, while they in turn may become affected by various constitutional disorders. Hence a knowledge not only of the general forms of disease to which the system is liable, but also of many special diseases, is essential to a comprehension of the causes and results of those which come appropriately under dental treatment. And as there is no foretelling the extent of the pathological sympathies under peculiar conditions of the system, it would be well to study attentively every known disease appertaining to the system or to any of the organs. Nor is there perhaps a single case or mode of treatment in medicine which might not, in some way, be turned to account in the sphere of dental practice.

That there is frequently, in the common affections of the teeth, occasion for a resort to constitutional treatment, indicates at once the importance of understanding the nature and action of general remedies, and the peculiar effects of these as modified by constitutional susceptibilities. Indeed the value of Practical Medicine in detail cannot be overrated as a guide in Dental practice. . . . . . .

In presenting the above remarks, we do not wish them to be construed as though it were incumbent upon the dentist to *administer* general remedies in order to vindicate his claim to patronage, believing, as we do, that most dentists, however well qualified, are and should be, content with the responsibilities of their special duties, without assuming those of the physician, and that they are therefore disposed to refer such constitutional treatment as may be needed, to the latter. But this does not militate against the principle; for without some general knowledge of medicine, how shall the dentist discriminate in regard to the limits of his own duties, or know when and in what cases to call in the aid of the general practitioner.

But to suggest more fully the importance of the medical branches, general and special, let us dwell for a moment upon one which is regarded, and perhaps justly, as of the *least* practible utility to the dentist, viz: Midwifery, or *Obstetrics*,—a knowledge of which, in particular, has been represented, in high quarters, as rather an incumbrance than otherwise. . . . . . .

Obstetrical Science comprehends a knowledge of the diseases of women in any way connected with child-birth, whether previous or subsequent to delivery; it also embraces those of their offspring. Now, as to the latter, it is well known that the most numerous and dangerous of infantile diseases are connected with Dentition, and every scientific dentist professes that it is his business to know something about this, and to suggest the proper management in cases relating thereto; this is and unquestionably ought to be a regular part of Dental Science. The peculiar susceptibility of the teeth of females during the period referred to, their uncommonly heightened sympathies with the general system, and also with special organs, and particularly with the uterus, are subjects with which it is important to be acquainted as a guide in dental treatment.

But there are other respects wherein, to dentists as men of science, as philosophic inquirers, as co-workers with the general practitioner in the investigation of medical truth, the information derivable from the province of Obstetrics, become of great moment—as may be indicated by the following facts:

The teeth are subject to hereditary peculiarities, frequently manifested by imperfections in them, by deformity, and increased susceptibility to disease. The physical condition of the mother has a great influence upon the structure and growth of the teeth of the infant while in embryo. The permanent teeth of the child are influenced by its state of health (often derived from that of the mother), and not unfrequently bear the marks to after time, of the diseases which it has suffered. Thus, if during the ossification of the dental pulps, and deposition of enamel, the child be the subject of attacks of fever, small pox, &c, these formative processes may be interfered with, and the teeth will consequently be found imperfect in structure, or defective in certain parts; sometimes for instance, soft spots will be found in the dentine, or tooth-bone, or the enamel may present grooves or depressions circling or indenting the teeth, at short distances apart, the intervening parts being perfect; thereby marking the periods in which the teeth have passed through certain epochs, as it were, of unusual disturbance.

It is moreover to be remarked, that the general management of the infant after birth, physical as well as medical, and also the manipulations with it during birth, may have much to do with the future condition of its teeth. All are aware of the remarkable plasticity of the jaws in early life. This, indeed, continues in a great degree during adolescence, and even to some extent after maturity. It is in consequence of this, that we are enabled to correct irregularity of the teeth and deformity of the jaws, often by the gentlest pressure when properly exerted. This also enables us to *prevent* deformity, or, upon the other hand, admits of its induction. Now the jaw of the uterine infant is incomparably more plastic, and although it is true, proportionally elastic, and capable of recovering from the effects of compressions, yet we can readily conceive of its being subject to such, to an extent beyond the provisions of nature. And from what is there more danger in this respect than in the forced exercises and manipulation connected with the act of parturition? Is there not ground for the assumption, that many of the unsightly appearances presented by the jaws and teeth in after life, may have taken their origin from the unnatural and forced conditions in which the infant was ushered into existence?

Thus it will be seen what a field of inquiry, not altogether without a practical bearing, might be opened and illuminated by this single branch of medical science, although perhaps one of the least important in its relation to Dental Surgery.

There are innumerable questions, many of the greatest practical importance to scientific dentistry, which demand light from every department of medicine. There is the question which relates to hereditary influences upon the teeth, and that which would ascertain how far and in what manner the physical and mental conditions of the mother are operative with respect to the fœtus. The effect of early impressions and habits, the influence of food upon the teeth, from infancy to maturity, as affecting them not only directly, but through the constitution; in regard to the quality of the milk as deteriorated or in any way modified by the health, food, passions and habits of the nurse, and as to the chemical nature of the various articles of diet, how far these contain the constituents requisite for the nutrition of the organized tooth-bone, and to what extent they afford the earthy material which is necessary to give this structure its due compactness and solidity,—all of which afford subjects for investigation. Then there is the great question as to the *national* peculiarities of the teeth, how far influenced by localities, endemic diseases, miasmatic agencies, atmospheric changes, mode of living, the use of certain aliments and beverages, habits, customs, &c. Our own country affords ample scope for scientific dental inquiry. We are met by the remarkable fact that the teeth of citizens of the United States are unusually subject to structural disease. Whence originates this unfortunate susceptibility? How far dependent upon locality, or upon our peculiar habitudes, and wherein shall we look for means to counteract or remedy the general evil?

Such questions belong properly to the province of the Dental Surgeon. But in order to grapple with them, or even fully appreciate their importance and bearing, it will be necessary to push our inquiries into the different departments of Medical Science. B. W.

FILLING TEETH:—THE MATERIAL AND INSTRUMENTS USED.

We copy the following highly interesting and instructive remarks on this subject from the Discussions at the Twenty-first Annual meeting of the Mississippi Valley Dental Association held in Cincinnati, Feb. 22nd, 23rd and 24th, 1865, as reported for the *Dental Register of the West* for April by **Geo. J. Manson**, Phonographer.

Dr. **Taft** : Mr. President—many think that we have reached about the ultimatum of our knowledge on the subject of filling teeth, but there are continually being introduced little things to facilitate our operation in this branch of practice, and we hardly know where the stopping point will be. Some think there is no great improvement being made, but I think, in many points, there is. There is a constant effort being made to improve the method of operating. This is evidence that perfection is not attained; that is, there is something else desired, and some improvement sought for. There is a constant and rapid change taking place in the profession in regard to filling teeth; witness the use of the mallet, a very important change, and one that will altogether change the character of operations. I know the character of my operations is all the time improving. So it is, one thing after another is being introduced to improve the character of operations and more effectually save the teeth. This improvement consists in a great variety of little things; we see these every day without thinking much about them. For instance: Dr. McClellan has here in his possession a little foil crumpler. I believe it was suggested some time ago, but it was not brought to the notice of the profession in a tangible form until just now; it is an instrument that facilitates one part of the operation of filling teeth, viz: the preparation of the gold for introduction. You perform that part of the work quicker and much better, by the use of that instrument, than by the ordinary method of crumpling in the fingers, and then, too, the gold is free from the moisture of the hands.

Then again, there are other little things. The Doctor has a little cap or a dam to put around a tooth to exclude the saliva. That is a little thing considered in itself, but it is an important thing when it will serve the object of excluding the saliva from the tooth when you are filling. Not long since some one showed me something similar to that: a small steel spring that may be wrapped with paper or cloth and clasp around the tooth, excluding the saliva.

There are other things besides these, small in themselves, but large in the results attained. When I look at the present method of manipulating by dentists; when I look at the manner of preparing cavities, at the excavaters, at the pluggers, and all the appliances used in filling teeth, I can not but think that our operations are far from being perfect, that they are scarcely ever made as good as they should be. A saving of time and labor in any of these operations, is important, and anything that tends to improve in these directions should be hailed by us with pleasure. I am always glad to see these little things, because there is something good in almost every one of them.

We have a great many in the profession who will not test new things. Many a man says, "Oh you're not going to catch me with that; I will let somebody else try it, and after they have been at the trouble and expense of trying it, if it works well, then I will take hold." It is the *duty* of every man to try everything that promises any good. You will find, even after others have tested these things, that you must try them yourself. An appliance that works well in the hands of one man, in the hands of another will not work at all. It is important that every man should test for himself. I do dislike to see a man say he will let somebody else try an improvement, and, when he finds it will work all right, come in and reap the benefit of his experience. This is a wrong spirit. To perform our work we should take right hold, and do what lies in our power, and not wait for somebody else to open the right road for us. Every man has his part to do, and should do it.

Dr. SHADOAN: I do not know that I have anything new to offer on on the subject of filling teeth, but I will state my method. I have found long since that I can not use many kinds of material for the same purpose and do each equally well. I consider that gold is the best material for filling teeth. I use adhesive gold No. 4. Some, however, think adhesive gold is not so good as soft foil. In proximal cavities of inferior molar teeth, we can not use it to such advantage as soft foil. I now use adhesive foil almost altogether. One reason is, if we use that at all we must use it altogether, or else we can not manipulate so well in soft foil when we wish to use it. It does not require the same effort to manipulate adhesive foil as it does soft; when we train the hand, therefore, to the use of adhesive foil, the same training will not apply to soft, consequently if we change, it will reduce the standard of our operations. If we get in the habit of using No. 6, and then change suddenly to No. 4, we can not manipulate so well. I claim we can not use soft and adhesive foil alternately, and bring our operations to the same standard as if we used one kind alone. I regard No. 4 adhesive foil as the best material for filling teeth, because if it is properly manipulated, a filling can be made as hard at the bottom as it is at the surface. We can build against a thinner wall with the adhesive foil better than with the soft, and can manipulate quite as readily. If we have two very thin incisor teeth, we can not do as well with the soft as with the adhesive foil, because it requires too much pressure upon the tooth, and the strength of it will not permit of the requisite amount of force to use soft foil. Some cut away more of the tooth than others; I am in the habit of cutting away until I get a sufficiently firm wall to work against. If the edges are thin and ragged I do not stop, but keep cutting, unless it is in the front teeth, then I would leave a little surface that I would, under other circumstances, remove.

The next best material for filling teeth, in my opinion, is "Wood's Fusible Alloy." I have been using that material for about three years. I was a good deal like that class of whom Dr. Taft spoke, I did not care to use the material at that time, because I did not know whether it would suit. Dr. Taft spoke to me about it, I tried it, and have filled a great many teeth with it. I have taken out plugs that have been in from one to eighteen months, and have never yet found an instance where the cavity was in an altered condition. I never used it in filling over an exposed nerve. If the nerve is diseased, I destroy it, and fill the pulp cavity with gold first, and then fusible metal afterwards.

A MEMBER: On taking the plug out at any time did you find it stained yellow?

Dr. SHADOAN: I never have; I think if the plug did not fit close in the cavity, the secretions would cause it to turn yellow. I have heard other dentists say that they have found this yellow deposit inside the cavity, but I think this is more from not filling close to the walls of the cavity than any thing else; the fluids of the mouth having a chance to get inside the cavity. I have filled some very shallow cavities with the metal, and find it is sufficiently tough not to break or tumble out, and sets perfectly firm. In a great many teeth where the crown is pretty much gone but a part remains, I have restored the crowns to nearly their shape and size. I restored the crown of a tooth for a boy last spring, and should think if the plug had been made from gold No. 4, it would have required from forty to fifty grains. I saw the case the other day; the filling was just as good as when put in, and I am confident no other filling would do so well. Another reason why I prefer the alloy is, that it does not discolor the teeth, even if you place it close to the enamel.

Dr. METCALF: In connection with this subject of filling teeth, perhaps it is a proper time for me to exhibit a little apparatus that I have. It is pretty generally understood that dentists are using adhesive gold foil in one form or another. [Here the Doctor exhibited his lamp for annealing gold foil.]

In annealing adhesive gold foil, I think it is better to use this lamp, as the gold is not affected by the moisture of the breath. Abbey's foil requires to be heated red hot; White's only requires a little heat.

Dr. KEELEY: I have annealed foil by this lamp, and I never had gold work better; from the experience I have had with the apparatus, I have been very favorably impressed with it.

Dr. DEAN: I have used this apparatus, and another one on the same principal, and like them very much. It works very nicely, and as Dr. Metcalf says, it obviates the difficulty of having moisture as when annealed by hand.

I wish to say a word on filling teeth. Dr. Taft spoke of consolidation by the present system; perhaps you know what I am driving at; it is —*mallet*. I have not got "mallet on the brain," because I have not used it long enough. I like it and have used it about two years, and have been trying to get up a method to obviate the necessity of having an assistant. I have got up a little instrument to take the place of a mallet, called a spring plugger; and it works as Dr. Taft said Hayes' most improved Vulcanizer works, *i. e.*, in my hands it works to perfection, but not so in the hands of others. I have now dispensed with my assistant and all my old pluggers, and propose to use my spring plugger entirely. I have asked my patients who have had teeth filled with the mallet and plugger, which they liked best, and they have said "the plugger," because the force of the blows is more equal. A spring mallet, which you can use handily, will save you an immense deal of work. Dr. Ellis, of Chicago, has used it and said to me," It has saved me one third the time, and I know it has saved me three quarters the strength; all you have to do is to hold the instrument firmly on the block." [The Doctor exhibited his spring plugger to the members present.]

Dr. **CUSHING**: I tried this instrument in four or five cavities, and found it to work admirably for a person who was not accustomed to use it. I think it would work particularly well in small crown cavities, where the pressure would be direct. I think very much time is saved by the use of it. When the instrument is perfected it will work very nicely. I oftentimes tried the mallet and this plugger on my patient, and inquired of them which they liked the best, and they gave their preference to the blow of the plugger over that of the wooden mallet, remarking that it was pleasanter on account of its uniformity.

Dr. **McCLELLAN**: Filling teeth may be regarded as the capital operation of Dental Sugery, therefore, whatever is calculated to facilitate the operation, and make it easier to the patient, or economize the time of the operator, are essential points to which we should direct our attention.

One word in regard to annealing gold. I can say, from practical experience, that annealing it in a pan is better. I anneal my gold in a close box, heating it by the blowpipe, emptying the gold when heated sufficiently to use it. The best substance from which to pick the gold up (and I have tried various, such as plush, velvet, etc.) is spunk. It presents a uniform surface and is of uniform elasticity. It is the best substance I have ever tried, to line the gold pan on the bottom.

A few words in regard to the preparation of cavities in teeth. You should have your plans well matured before commencing; examine the cavities and have the instruments selected, and not have a superfluous number of them. You should have in your mind the form of the cavity, and then go to work. I often separate and open cavities with chisels; I select the material for filling according to the case. If I deem that the cavity is difficult to keep dry, I select materials that will be least endangered by getting moist before the operation is completed. Most teeth I would not think of filling with anything except adhesive foil, although it might give me considerable trouble to keep the cavity dry. I think good plugs can be made of soft gold, but prefer No. 4 adhesive foil. On placing the plug in its position, with a foot instrument, I mallet it firmly to its place; the cavity may be half filled in that way.

One of our members said he did not fill the fangs of teeth with Wood's Filling, though he used it for crown cavities. I think there are some crown cavities that it is next to impossible to use Wood's Filling in—cavities where a portion would have to go beneath the free edge of the gum. Such cavities I fill with tin foil plugs well malleted down, making the surface of Wood's Filling, which takes hold of it well. It has also the advantage of protecting the pulp. I regard Wood's Filling, if properly used, as second only to gold; I am sure a great many good operations are made with Wood's Filling; I have made a few myself. It requires no less skill to make a good filling of that than with gold. We should examine the walls of a cavity after filling it, and see that it is well filled.

There is another filling which I use, it is only temporary; yet some use it as a permanent filling. I refer to the filling known as "Artificial Dentine." I have seen fillings of that material of five years standing; it very much resembles Hill's Stopping. I have used it for five years, and think it is the best material that can be used in front teeth, where the walls are thin and frail.

Dr. **SHADOAN**: Before you sit down will you please tell me what a "foot instrument" is?

Dr. **McCLELLAN**: It is an instrument with the end shaped like a foot: I think there are two in Atkinson's collection?

Dr. **HORTON**: I would ask of the gentleman, is artifical dentine anything like "Roberts' Filling?"

Dr. **McCLELLAN**: It is not. I would add that I have used the mallet for over a year, and have no assistant, as the operator knows what kind of a blow he wants, the best. You can not regulate the spring plugger; the blows are all of the same force.

Dr. H. A. **SMITH**: As a non-conductor to be used in filling teeth I found spunk objectionable, because of the pain it frequently produced when first introduced into the cavity—will not attempt an explanation of this.

The best non-conductor for this purpose I have tried, is wood. It has the advantage also of stiffness or resistance to pressure in filling, when the lamina of bone is thin, covering the pulp. If the nerve is exposed, a false bottom can be made of it, by letting the edges of the cap of wood rest upon solid dentine, beyond the point of exposure. Thick Bristol card board can be used in the same manner.

I use wood that is tough and moderately hard. If cut across the fiber it conducts heat and cold less when cut lengthwise or in the direction of the fiber. The bark of the wood is a poorer conductor than the wood itself, and for the purpose mentioned might be used to advantage. The average conductibility of wood and tooth bone I think is relatively about the same. The hardest woods are not necessarily better conductors than the lighter kind; but would select the softer class of woods as perhaps preferable in this particular. If I wish to render the wood more indestructible, I would simply saturate it with creosote.

Dr. **McCLELLAN**: I would like to make some other remarks. I will endeavor to answer one question, that is why spunk sometimes gives pain when placed in a tooth. I do not think it is from its conducting property so much as from its velvety surface gliding over the exposed dentine; cotton will produce the same effect. In all such teeth I wipe out the cavity with cotton moistened with creosote, before filling; I do not claim this as an original idea, at least so far as the preservative quality is concerned. I use it to destroy the sensitiveness of the dentine so that the passing in of the gold does not excite the salivary glands so much.

Dr. H. A. **SMITH**: Heat may be very slowly transmitted through light porous substances like asbestos or spunk; but if the mechanical relation of the particles of which it is composed are altered by pressure or otherwise, the motion of heat may pass rapidly through a substance which in its natural state was a poor conductor. It is the air contained between the fibers of asbestos and spunk which prevents the rapid transmission of heat through them.

If wood is placed in the bottom of a cavity, the pressure necessary to make a good filling over it could not thus alter its structure, and we are certain that its conductibility is the same under the filling that it was before being placed in the tooth. If we use the light porous substances usually recommended for this purpose, we are not sure but that they are by pressure made nearly as good conductors of heat and cold as some of the metals themselves used in filiing teeth.

Dr. **McCLELLAN**: If we have a tooth with a strong wall, perhaps wood would be as acceptable a material as any other. We are frequently called upon to fill teeth largely decayed, where the nerves are nearly exposed;

in such cases I would prefer to use a conductor that would resist the action of the fluids of the mouth and the atmosphere. 'I think dentine would be good for that purpose.

I saw a tooth that had been filled for years, half filled with dentine and the remainder with amalgam; that tooth served a good purpose for years when I saw it, the non-conductor was exposed. Had that been wood or some substance like that, it would have allowed moisture to get in.

Dr. TAFT: I find we are all the time learning; I have learned many things this afternoon which, I presume, will be advantageous to me; such little things, for instance, as the annealing lamp which was exhibited to us. I think this little arrangement is good, because the gold does not come in contact with the flame of the lamp. I like the arrangement very much indeed; there is, perhaps, a little difficulty in picking it up from the metallic surface of the pan; but you can pick up the gold from any surface, from a piece of glass for that matter, if the instrument is sharp; and your instruments always should be kept sharp. Some operators, Dr. Atkinson for instance, picks up gold with the pliers, putting it in the cavity and not touching it with the point of the instrument at all until he condenses. There is an objection to picking up gold with the point of the instrument, while it is hot, as it will soon take the temper out of the sharp point, and it becomes dull and spoiled, and soon rendered unfit for use. I regard *this* lamp as a very good thing, and shall avail myself of its use as soon as possible.

I am very glad to see that there is a disposition in the profession to use the mallet, for I regard it as a great improvement on other methods. Everybody ought to use the mallet; it is not one of those complicated *methods* of operating that will involve anybody in difficulty. It is probably the simplest method of filling; the operator has only to handle his instrument, and the stroke is given by an assistant, if he has one. Everybody should have an assistant; but if he can not, let him get an automatic plugger by all means. Most dentists, I fear, on trying this instrument, if they find it will not work well at first, as they wish, will throw it aside and refuse to use it; it is much better to have an assistant, I think, though these instruments can be very well used after a little practice. I have used one similar to Dr. Deans' for some time. If you have an assistant, all you need do is to watch the point of the instrument, letting the assistant give the blow. After one becomes accustomed to the use of the plugger they might use it very well; but I would urge the profession everywhere to adopt the use of the mallet. I find I can work ten hours a day with the use of the mallet, easier than four or five by the old method; used to tire in the muscles of the chest. I know operators who use a great deal of force—jar the whole body when filling; many dentists of that class boast of the number of teeth they can fill in a day. With the mallet you can fill with perfect ease, and it is much pleasanter for the patient. There is not one patient in twenty who will not prefer it to hand pressure. You can fill more rapidly with hand pressure, but not as well as with the mallet, if you would take care. It is saying a good deal, but I think I can fill better with the mallet than in any other manner, and I know that every one who has practiced the use of that instrument for any length of time will tell you the same thing; it is only those who have never made a test of the matter who say they can not fill as well with the mallet as in any other manner.

THE PRESIDENT: Filling teeth should interest us more or at any rate as much as any other subject that comes within the scope of our discussions. With regard to filling, all acknowledge that gold stands preëminent, and that there is nothing equal to it. Some prefer Abbey's, another one, Kessing's; another, Dunlevy's; another, Watts'. I am not so utilitarian as to confine myself to any one kind of gold; I believe I have used all forms of gold that have been presented to the dentist. I have found in some cases soft foil was better than adhesive, and in others, *vice versa;* but of later years I have confined myself mostly to the use of adhesive foil; at present I prefer Watts' crystal gold; the manner of using it is to anneal it, passing it through a lamp piece by piece. This little instrument [pointing to the annealing lamp] has removed a weight off my mind. I would like to suggest to Dr. Metcalf, however, that instead of furnishing us an iron bottom, he furnish us with one of mica or ising-glass, which I have found better than iron or any metal. I used to anneal gold by laying it on a sheet of mica, and passing it through the flame. Finding it took more time to manipulate gold after it was annealed, I made the pellets beforehand, and put them on the mica sheet and heated them red hot. I do so now.

The assertion was made that it was as difficult to put in a good Wood's filling in cavities where the gum came in contact with the cavity, as it was to put in one of gold.

We can not be too careful of the manner in which we prepare our cavities for the insertion of gold; where we have proximal cavities we must be very careful of that little piece of gum that is between the teeth. Moisture coming in contact with gold, be it adhesive or soft, in my judgment, spoils it; and I will never finish a filling that has a particle of moisture about it. Where the gum comes up into the cavity of the tooth, or the cavity is below the free edge of the gum, too great care can not be taken to preserve it from moisture; we must resort to one of two methods, either insert a wedge of wood or some such material between the teeth, or, if the gum is spongy and soft, crowd down the gum until we get the edge of the cavity above the piece of wood that is inserted; if the gum is hard, cartilaginous in its texture, as we will frequently find it, and the pressure would be too great upon the patient, it would be best to run a delicate knife between the teeth and cut out the gum until we get below the cavity. If there is much hemorrhage apply sulphate of iron, and then insert the wood; or, if there is time enough, I send the patient away, telling him to call again in two or three days when the hemorrhage has ceased and the wood can be inserted. In all cases where I have a filling to put in between the teeth—a proximal cavity that runs within a line of the gum, I insert a thin piece of wood, crowding it in firmly; it checks any exudation of mucus, and if the cavity extends to the neck of the tooth, the instrument strikes upon the wood instead of the gum. With such a cavity, if I have crystal gold, I care not what shape the cavity is, if it be only so that it will retain the gold, I can make a good filling. I have sometimes worked in where the cavities run far up into the dentine, on the very root of the tooth.

As regards the mallet, I think it of great benefit, especially for young operators. The young operator finds the greatest difficulty in making his filling secure; by the use of the mallet he can condense his gold in such a manner as to make it perfectly solid. The mallet is a good instrument, and fillings can be put in with it magnificently. I think also they can be put in well without it.

DESTROYING NERVES AND FILLING FANGS.

BY DR. W. H. SHADOAN, LOUISVILLE, KY,

The subject of destroying the nerves of teeth, and filling fangs, has been written upon, until it has become quite hackneyed, yet I am not so sure that it has been as thoroughly treated as it might be. What I shall say in this paper will be strictly practical. Theory does well, but the practical is surely the more profitable.

There are a great many dentists who still insist, that the subject of destroying nerves and filling the fangs is more fancy than fact. I saw an old, and very respectable practitioner a few days since, and on speaking upon the subject, I remarked, that I had just dismissed a patient, that I should have liked for him to see. He spoke so slightly of the idea, that it led to quite a spirited discussion. I have heard the same gentleman say, that he never attempted to fill the nerve cavity of a tooth, but that he would fill the cavity of decay, and drill a hole just under the edge of the gum to allow the accumulation of matter to escape, and he never had any trouble with it afterwards. This kind of treatment may do in very healthy persons; but then I should feel certain of failure if I had the case.

A short time since, I had a patient who had been in the hands of this gentleman, and another dentist of the same school, and he had two teeth filled in this way, one by each. The patient said that every few weeks he had trouble in these teeth. I removed both fillings, and found two of the most fetid cavities that I recollect of ever having met.

But to the point. As may be well known, I have, for the last seven or eight years, been a strong advocate of saving all teeth that could be restored to health; unless in cases where all the teeth but one or two in front had to be removed to make room for artificial teeth, then I would extract them. I will premise by saying, that the health and vitality of the patient will greatly influence the result. But the patient being in healthful condition, with good recuperative powers, it is one of the easiest parts of Dental Surgery to destroy the nerve of a tooth. The filling of the fang will depend upon the position of the tooth in the mouth. The application I have used for several years, and in fact until within the last six months has been cobalt and creosote mixed; but I have some objections to this; one is, that it does not cause the nerve to peel from the wall of the canal as well as arsenious acid and creosote. Another objection is, it is not so certain in its action, and is more difficult to use, it being very crumbly; and again, it requires a greater quantity to do the work.

I now use arsenic, creosote, and sulphate of morphine. To prepare this; grind in a Wedgewood mortar, the arsenic until it is quite fine, then add enough creosote to make a paste, and to one ounce of the paste, add six grains of the morphia. After you have exposed the nerve of the tooth, a very small particle of the paste will in from six to twenty-four hours destroy the nerve, when with a suitable nerve instrument take it all away clean. The arsenious paste does not seem to make the membrane tender, as does the cobalt, which is quite an important item. If the nerve of the tooth be in any degree healthy, I seldom let the nerve cavity remain open. The removal of the nerve is generally complete to the apex of the fang. Then we may wash out the cavity with a little tepid water, and fill the fang with gold saturated with creosote.

If the tooth is in a healthy condition I seldom wait to see whether there will be any further inflammation in the socket, but fill immediately. My former practice was, to fill the fangs of all teeth (where the nerves had been removed), and leave the crown cavity open for several days before I attempted to fill the tooth. But a careful observation has demonstrated the uselessness of delay.

There is a great variety of forms of disease to be combated in teeth, where the nerves are, or have been exposed. The most simple, and easy of successful treatment is that kind just mentioned. Where a nerve of a tooth has been recently exposed in a healthy subject, the sooner the tooth is filled after the nerve is removed the better (provided the preparation used for the destruction of the nerve, has not remained so long as to produce periostial inflammation). There is less liability to inflammation at that time than any other.

The next in order would be those cases where the decay had exposed the nerve for some length of time, and considerable disturbance of the surrounding parts has supervened. After the application to the remaining portions of the nerve, some counter-irritant may be required to allay inflammation before it would be at all safe to fill the tooth. I frequently meet with teeth where the decay has nearly or quite exposed the nerve, and find the cavity perfectly dry,—the nerve seemingly dried up and so brittle as to crumble on the slightest touch. When this is the case, with no signs of alveolar absorption, I usually fill immediately. But should there be any fetor whatever in the fang I should hesitate. If my patient could not conveniently return as required, I would fill at once, but not where the symptoms of abscess were very prominent.

The objection urged by some to the practice of destroying dental nerves is that the tooth is thus deprived of its nourishment and consequently dies. Others say it is impossible to remove every particle of nerve in all teeth, and that the decomposition of the remaining portion will cause the tooth to become dark and offensive. I am aware that it is almost impossible to remove every particle of nerve in all teeth, yet I am fully prepared to say that after we have removed all that is practicable the small remnant may be thoroughly saturated with creosote, and then I have no fears of any trouble from that source. I could, if necessary, report a number of cases as proof, where I am confident there were particles of nerve fiber left, and have yet to see any discoloration in the tooth.

I have removed fillings of several years standing, some inserted by myself, others by dentists of known ability, that had been treated in this manner, and they were free from any offensive odor, or formation of pus, the creosote still retaining its original properties.

Some of the advocates of fang-filling insist that to secure success we must fill all fangs to the apex. Others say it is utterly impossible to fill all, and consequently they don't fill any.

In answer I would say; let us recommend as thorough extirpation as is possible without too great a sacrifice of healthy dentine. But if we find cases, and we do find them, with the nerve canal so very small that we cannot extirpate the nerve filament, saturate it thoroughly with creosote and let it alone. I would rather take the chances of such a case, than to extract the tooth. This thing of extracting a tooth because a small particle of nerve cannot be removed, is like amputating an arm because of a felon on one of the fingers.

It is said that owing to obvious difficulties we cannot fill all the fangs we claim to fill. I answer that I fill all I say I fill. I never have said that I fill all the fangs of teeth; by no means. I fill all that I *can*; in the balance I force as far as I can a pledget of cotton or lint saturated with creosote, and then fill upon that as closely as I can. Creosote *is* one of my main supports. I claim for it more than any thing in the list of escharotics. I seldom ever fill a fang without first saturating a small pledget of cotton with it and forcing it to the apex of the fang, if that can be done, and if not, then as far in that direction as possible. I follow it with gold, allowing the excess of creosote from the cotton to remain. By the time the fang is full, the creosote is all exhausted. If not, dry it off, and proceed with the adhesive foil; and *mallet* it home.

◆

TESTING VULCANIZERS,—*By W. P. Haywood.*— Fill the boiler as full of water as it will hold, screw on the lid, and, if there is a valve, fasten down or load as heavy as it will ever require to be at the highest point of the mercury for vulcanizing; then apply heat, which will cause the water to expand, long before it reaches its boiling point, with great force, and if there is a leak in the packing, or the boiler is otherwise defective, the water will ooze out.—*Dental Quarterly.*

LETTERS PATENT FOR PLUGGING INSTRUMENTS.

The following is a full and correct copy, and will perhaps sufficiently describe the nature of the Patent, without the cuts:

The United States of America, to all to whom these Letters Patent shall come:

Whereas, Barnabas Wood, of Albany, New York, has alleged that he has invented a new and useful Improvement in Plugging Instruments for the Teeth, which he states has not been known or used before his application, has made oath that he is a citizen of the United States, that he does verily believe that he is the original and first inventor or discoverer of the said Improvement; and that the same hath not to the best of his knowledge and belief been previously known or used; has paid into the treasury of the United States, the sum of Thirty-five dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said Improvement, and praying that a patent may be granted for that purpose.

These are Therefore to grant according to law, to the said Barnabas Wood, his heirs, administrators, or assigns, for the term of seventeen years from the twenty-eighth day of February, one thousand eight hundred and sixty-five, the full and exclusive right and liberty of making, constructing, using and vending to others to be used, the said Improvement, a description whereof is given in the words of the said Barnabas Wood, in the schedule hereunto annexed, and is made a part of these presents.

In Testimony whereof, I have caused these Letters to be made Patent, and the Seal of the Patent Office has been hereunto affixed.

Given under my hand at the City of Washington, this Twenty-eighth day of February, in the Year of our Lord, one thousand eight hundred and sixty-five, and of the Independence of the United States of America the eighty-ninth.

J. P. Usher, Secretary of the Interior.

Countersigned and sealed with
the seal of the Patent Office.

D. P. Holloway, Commissioner of Patents.

The Schedule referred to in these Letters Patent and making part of the Same.

To all whom it may concern:

Be it known that I, Barnabas Wood of Albany, in the county of Albany, in the State of New York, have invented a new and useful instrument for filling teeth; and I do hereby declare that the following is a full and exact description thereof, references being had to the accompanying drawings and to the letters of reference marked thereon.

This instrument is designed for applying the Fusible Metal Filling known as Wood's Fusible Metal, or Plastic Metallic Filling — the object being to provide an instrument, otherwise suitable, which shall be able to receive readily a due amount of caloric (in quantity rather than intensity), convey it readily to the material to be manipulated, and retain as long as practicable the temperature requisite for manipulating. A reference to the nature of the said Fusible Metal and the manner of working with it, as described in my specification relating to the same under date of 18th February, 1864, will indicate the importance of this.

Hence that part of the instrument designed for receiving the heat and conveying it to the material should have considerable capacity for and be a good conductor of heat, while the shaft or support should be the reverse. My invention consists in so constructing and combining these parts, as that the essential requisites in this respect, and others, are practically attained, and in a simple and economical manner. This I effect, 1st by forming a head or bit of metal with a bulb thereon between the beak or blade and the neck, the beak or blade (which may be of various forms and sizes suited to different cases) projecting sufficiently beyond the bulb to reach the desired places, and the neck extended sufficiently for attachment to a support or shaft:— And 2nd by combining this head or bit with a tubular shaft for its support, as herein described.

The head of the instrument including the bulb may be of silver, german-silver, bronze, or any other hard metal or alloy, that is a good conductor of heat. The tubular shaft may be of metal the same as that of which the head is made, or of a different metal having a lower conducting power, or otherwise preferable, being made as thin, as is consistent with strength; or it may be of glass, porcelain, or other "non-conductor" of heat; or it may be a combination of the two, using, for example, a metal tube as thin as desired to diminish conduction, and having this inlaid, cased or enameled with a poor conductor. As an insulator for the protection of the lips, when the tubular shaft is of metal, I encase the shaft simply with a glass tube, (as shown by the drawings) which also serves as an additional support.

The head of the instrument is affixed into the shaft according to circumstances, by means of a solder or a luting, or any cement that will bear the heat to which it is subjected. Water-glass answers well, by itself, or mixed with ground-silex, etc; also zinc-white, calcined, and mixed up into a paste with a solution of chloride of zinc, affords a good luting for the purpose.

I most commonly make the heads of german-silver. For one style of the instrument I use tubes made of glass, affixing the heads thereto by means of either of the above named lutings. For another style I use thin tubes made of german-silver, from one to two inches in length, and about one tenth of an inch, more or less, in diameter, solder the heads to them, and set them, with or without a glass casing, into ordinary handles; sometimes I use larger metal tubes, with glass tubes secured therein, affixing the heads thereto with cement.

I will now describe the several parts of my invention, by the accompanying drawing. Letter A represents the head or bit of the instrument; *a*, the blade or beak; *b*, the bulb; *c*, the neck. B, metallic tubular shaft; C, handle for the same; D, insulating tubular casing for the shaft B. E exhibits a non-metallic tubular shaft extended to a handle. F, the entire instrument.

The instrument is used as follows:

The fusible metal to be applied to the dental cavity, having been cut up into pieces of suitable size, the bulb of the instrument is heated to the proper temperature over the flame of a spirit lamp, or otherwise, and the blade or point is then applied to a piece of the metal, which will soften under it, and cling to it so that it may be carried to the cavity and moulded therein; or the pieces may be first placed into the cavity, and then forced down with the heated instrument, in either case adding piece after piece until the work is complete—as further described in my specification of an Improvement on Fusible Metal for Filling Teeth, February 18th, 1864.

What I claim as my invention, and desire to secure by letters patent, is the herein described instrument, consisting of a metallic head as described, affixed to a tubular shaft whether of metal or other material, for an instrument for filling teeth with the herein mentioned Fusible Metal Filling, or other similar material.

I claim, 1st, The construction of the head A, with a bulb, blade and neck, as represented. 2d, The formation of the bulb *b* between the blade *a*, and the neck *c*. 3rd, The combination of the head A, and tubular shaft B or E. 4th, Also the application of the insulating tubular casing D, to the tubular shaft B.

NOTE.—It is designed to present cuts of the drawings in a subsequent number of the Journal.

The instruments are also useful for applying AMALGAM, which, if used, should be applied and finished by means of a *heated* plugger, as it requires less mercury, causes it to combine more perfectly with the filings, gets rid of the surperfluous portion, and makes a better plug. The amalgam paste is applied in the same manner as the material referred to above, as it clings to the heated blade and may be carried to the cavity in the same way.

DENTAL PATENTS — A CHANGE OF TONE.

We copy below an Editorial from a late No. of the Philadelphia "*Dental Cosmos.*" It contains some very candid concessions which we should hardly have expected from that source. The article as a whole is very well written, and uncommonly free from that looseness of style, ambiguity of phraseology, and inverted construction of sentences so characteristic of the writer, showing evidence of revision by another's pen. The writer has materially moderated his tone since the time when he advocated the ostracism of the "*whole tribe*" of patentees from the pale of the dental profession. He throws out some really sensible remarks; and in comparatively good temper and fairness, at least until he comes to the *special drift* of his paper, although he still shows strong aversion to having inventions and improvements "thrust" upon the profession, and "*forced* upon the inexperienced." As we shall have some comments to offer on certain points, we give the article in full, believing it due to give every one a fair statement and hearing upon points of differences in the legitimate connection. That such a course may be met by the opposite troubles us little. Let those who choose withhold from their readers the facts and arguments on the other side, and indulge as belikes them in garbled citations, partial statements and perverted constructions — it is the resort of low cunning which cannot long influence any except the ignorant and malicious. At any rate, let us act our part rightly, and let the consequences take care of themselves; it will secure one's own just self-respect, if nothing more. Here is the article :

DENTAL PATENTS.

THIS subject seems again to engage the attention of the dental profession; a number of years since it was very fully discussed by many able members of our art, but mainly, at that time, as to the right of dentists to patent at all, or as to whether it was in conformity with proper dental ethics. Now another step has been taken, and that is, to contest by law the validity of patent claims which are attempted to be thrust upon the profession. We have not yet been able to see the wisdom of this procedure: first, because it brings one class of men in legal conflict with another; and, second, because it presupposes that no one has a right to letters-patent which his government may see proper to confer upon him. The first would involve in endless litigation those who contested that right which the laws of the country allowed; and the second, that any one applying for a patent must first obtain a legal opinion as to his right to his patent before he obtains it, or be exposed to attack by those who may think proper to contest it or differ with him, and expose him to unnecessary expense and trouble to defend what he supposed the laws of the country gave him a right to enjoy. As long as the profession of dentistry is composed of a body of men who take different views, so long much trouble and bitter conflicts will arise; and as long as there are many things in dentistry which have been the subjects of patents, and many more may occur, we can see *no* end to litigation, or professional strife.

The patent laws of the country are doubtless the stimulus to invention, advancement, and improvement in the mechanic arts in every direction, as well as in dentistry. If it be wrong to patent anything in dentistry, apply for an alteration of the laws. The man who holds letters-patent, granted by the laws of his country, has decidedly the advantage of any combination which can be brought against him. And yet those members of the profession who can afford to give the fruits of their labor and inventions to the body of the profession free of pecuniary reward from their brethren, or if they be actuated by an *esprit de corps*, they should not object to those who cannot afford to act from such high and noble impulses.

We would suggest that a different course be pursued; let the profession be divided into two distinct branches. Let every one who invents, or thinks he has improved, any mechanical thing, or material, or appliance, have the right which the laws of his country guarantee to him; but he who thinks differently let him set himself aside from association with him, as a true professional man, and let the patentee in turn be satisfied with whatever emolument may accrue to him by the sale of his wares or improvements to whomsoever may choose to purchase them, and use them in his practice, by paying a remunerating price, without the necessity of purchasing the right also to use what he has purchased, as his wants or occasion may require. It is not enough to sell the article, whatever it may be, for what it is worth, if it be better than that which has not been patented, without the purchase of the *right to use* what one buys and pays for? Besides, there is another grave and important question involved in this matter; we feel that we have a right, nay, it is our duty, to express opinion with reference to the merits or demerits of an article offered to the profession by patentees; and yet it does not accord with the over-weening aspiration of a patentee. We are rendering ourselves amenable to prosecution by law for daring to express opinions which may militate against what he regards as his lawful rights. If patentees are allowed to thrust articles upon the profession, which are intended to be employed for the alleviation of human suffering, and the opinion of one or another may differ, and the fear of prosecution is to shut his mouth so that it is passed over in silence, and forced upon the inexperienced, then it is high time that patents should cease to be granted for any purpose, except for the merest mechanical and mercantile purposes. Who would think of purchasing a license to use a patent plow, or threshing machine, or washing machine? Why, he would call down upon him the laugh from every washerwoman and plowman. Every one has a right to patent, but not to restrain opinion or criticism with reference to its utility in the community he lives in.—J. D. W.

REMARKS ON THE ABOVE — RESTRAINT OF OPINION.

The foregoing closes with a characteristic confounding of things, the drift of which will be seen presently. The idea of being specially restrained from criticising a *patented* article is certainly original. The law indeed affords redress for *false* representation injurious to another as to property or character, but until the above, it was probably unheard of that a patent or a patentee had any special protection beyond what any one or anything else is accorded. On the contrary, patents and patentees have been the objects of severest criticism, and even vituperation, without resorting to prosecution, even in cases where others would have been impelled to this recourse for self-preservation; for men can afford to bear with misrepresentation when protected by law from direct appropriation and spoliation of their property. There is one thing rather favorable to a patented article in case of libel, in being put on record open to any one's inspection, whereby direct misrepresentation is easily proved, and affords less plea in extenuation. But we see no foundation or occasion for the remark that "we are rendering ourselves amenable to law for daring to express opinions" militating against patents, although there would be in the case of the publication of injurious and malicious falsehood. Nor do we see that the remark with reference to "restraining opinion," has any relevance whatever in this connection, except for a purpose to which we shall presently refer.

THE RIGHT OF PATENTING AND WRONG OF COMBINATIONS AGAINST IT.

As to patenting, we agree with the writer in his concession that "*every one has a right to patent*," and, consequently, that it is wrong to seek to resist or impair this right; as also, that if it were wrong to patent, the first business would be to alter the laws, and not, while they remain laws, seek to violate or evade them. We agree in the important concession that the "patent laws of the country are the stimulus to invention, advancement and improvement in the mechanic arts in EVERY DIRECTION, AS WELL AS IN DENTISTRY." We also coincide with reference to the folly and evil of *combinations*, machinating against the rights of inventors and the laws of the country under which they hold those rights. It is nothing else than sedition and moral treason, little better than that which stirred up armed rebellion against the laws ere it had drenched the land in blood. It is the business of every good citizen to frown down all *combinations* against the laws or the rights and immunities under them. Do any other class of men beside dentists form combinations to resist patents, to despoil patentees of their vested property, or to deter them from the possession and rightful enjoyment of the same by the fear of ruinous litigation or professional odium? Would dentists be engaged in it but for party rancor, based upon professional jealousy and antagonism, and backed by a low class of men who have rushed into the profession simply because they considered it to be an easier and safer shift for getting money than thieving,—some of whom have reached to positions of influence, but undivested of their original proclivities?

Moreover, these conspiracies to put down patents, whether by litigation, surreptitious use, or opprobrium, defeat the very ends which they profess to promote. They insure the perpetuation of the monopolies they resist. The patent law grants an inventor the exclusive use and behoof of his invention for a limited period, on the ground of his making patent (or open) all necessary information relating thereto; and after that period it falls in possession of the public. It is designed he shall have time to realize a fair remuneration. It is assumed the public will abide by the law, and accord the patentee unmolested enjoyment of his right for the time. If he can show inadequate remuneration owing to unusual discouragement and obstruction, no power can prevent his obtaining an extension. Thus, this opposition to dental patents but serves to insure their extension *ad infinitum*. The Dental Profession are doubtless responsible for the late extension of the Hard Rubber patent another term, and, judging from movements now afoot, they are likely to afford just cause for its extension for yet a subsequent term. When shall we realize that the "*blind leading the blind*" precipitates all in the ditch!

DIS-ASSOCIATION.

We now come to some points in the article quoted with which we do not so fully coincide, as we also approach a development of the *special drift* of the writer. "Let every one" indeed "have the right which the laws of the country guarantee to him; *but he who thinks differently let him set himself aside from association with him, as a true professional man.*" This expedient was set forth previously more in detail by the writer's editorial confrere, to the effect that Dental Societies should take a stand against any *active member* taking out any dental patent, (although not against an *honorary* member,) and that no *practitioner of dentistry* taking out such patent should be eligible to membership, whether active or honorary; but there was no objection made to non-professional men taking out dental patents, nor to their admission to Societies as *honorary* members, and it was expressly set down that, being outside of the profession, they could "not be considered as coming under the operation of or to be governed by" the rules proposed—which last appeared as more especially designed for the benefit of the proprietor of the journal which the writers are employed to edit, and who had taken out dental patents and was an *honorary* member of several dental societies. We expressed our sentiments on these matters in our January number and need add nothing further. We do not see, however, how the proposed societies (composed of the proposers and others of their turn of mind) setting themselves aside "*as true professional men*" from association with the rest of the profession, in invidious distinction, are going to avoid "professional strife," "trouble and bitter conflicts" &c. Nevertheless, we are perfectly willing to see the experiment of "the TRUE DENTISTS Society" tried — although as the term "*true* dentist" is suggestive of the "*true* Jacob Townsend's" pills, and other "genuines" of the sort, it might be changed to "*truthful* dentists" and answer as well. We doubt not that the "inventors" of the project could get up the Society. We are quite sure they could have *three* members to start with — two "*active*" and one "*honorary*" — the latter to take out and hold the dental patents, and the former to fight off other "patentees." Around this nucleus would doubtless cluster the special favorites of the "Dental Cosmos," and all expectants, whether of a place in that "world or universe" (to anglicize the term) or of its "influence." But we think we could suggest an expedient more direct and attended with less trouble, to fully satisfy the restless yearnings of the parties concerned. Let dental societies frame their constitutions so as to "exclude from membership" and "not patronize," but a single individual who has given mortal offence, especially in touching some *soft and tender spots*,— and we think, judging from the present modulated tone in regard to patents, all "professional strife" and "bitter conflicts" on this score would soon cease in those troubled breasts.

LICENSES.

There is one subject referred to in the above article, which, owing to irritation engendered by wrong impressions and perverted constructions in regard to it, requires some serious notice — the subject of *licenses.* Licenses are provided for by law as a part of the patent system, without which the latter would be useless. To strike down the one, is to strike down the other. The government grants to a patentee the exclusive right and liberty of making and using his invention within its territory, and it is a legitimate business of the patentee to grant or deed, for a fair consideration, the whole or any portion of this right to others, for the whole or any part of such territory, as may be agreeable to the parties. He may assign territory or simply grant a right of use in it. If it be an art, method or process, the license fee is his sole remuneration. If he wishes to manufacture and sell the articles produced, he may fix a price so as not to require a license. Frequently the first introduction is attended with such trouble and expense that, unless backed by large capital, a license fee becomes indispensible, without which nothing could be done.

But the writer puts his objection to the "purchase of the *right to use* what one buys and pays for." And he holds up to jeer those who would consent to purchase such right. But this form of objection, although plausible at first view, and backed by reference to the custom in respect to certain articles, (which, however, are simply used but not vended to others to use,) entirely begs the question by assuming that the *price* fixed upon the *article* is such as shall also remunerate the cost of *invention*, while it altogether ignores the intention of a license. A license is to protect the *user* against molestation and interference, whilst it also aids the patentee to determine more readily who are infringers to the detriment of his interest and that of his licensees, especially in the case of articles liable to surreptitious imitation and use. The *fee* for license is strictly the *inventor's fee*, to reimburse him for time, labor and expense, attendant upon the development of his invention or discovery, while the *price* set on the manufactured article is simply to meet the cost of manufacture. Every sensible and right minded person will concede the justness of this in either case. If either the *fee* for license, or the *price* of the article be extortionate it is open to objection on that ground; but that is altogether a different thing, and in no wise affects the question in regard to licenses. With articles which cannot be used unbeknown to the public, it may be policy to put the fee on the article, and let the fact of purchase convey the right of use, without a license, (although none are so ignorant as not to know that if they wished to *make and sell* it they would have to take out a license.) But surely no sensible person would regard it of pecuniary consequence whether the whole fee, including right of use, be paid in the price of the article, or whether part be paid in form of license fee, provided the *sum* be fair and equitable.

The Rubber Company charged two dollars and a half for material, and required a license. It is said by dealers that had they charged eight or ten dollars for material, without a license, they might have realized *ten times* the profit, and *purchasers been satisfied!* It is the custom of those whose articles are held a secret. It takes money gradually without the parties knowing it. But, as the rubber work required instruction, it is likely, had the company adopted this policy, the material would have been cursed by bad work more than it was. At any rate, we are not discussing *policy* or expedients for getting money, but questions of right and principle which should be recognized by an intelligent and honorable profession.

Aside from the mere caviller who repudiates licenses simply to avoid the recognition of a patent or the just claims of an inventor to his own, no one can object to taking out a formal license to use a patented article or process which he is willing to recognize. It is a legitimate and straight foward mode of recognition. It is the least any generous mind can accord. To those who would appropriate the benefits of another's improvement or discovery without so much as giving credit for it, and still more to those who had been swift either to depreciate or to prefer claims as originators, the taking out of a license from the patentee would doubtless be repugnant. It is well known to what extent this spirit exists among a certain class in the profession. Even those who have been most decidedly opposed to securing patents, when done with a view to remuneration, are beginning to acknowledge the wisdom and necessity of patenting, as a means of securing to the rightful parties a recognition of their discoveries and improvements; and we do not see how this can be more effectually secured than by requiring licenses,—with some fee affixed, as substantial evidence of recognition, which, if the inventors were liberally disposed, they could apply towards further improvements or other benevolent objects. This would stimulate invention and improvement with all parties, whether prompted by motives of profit or ambition, since each could feel secure of protection in his own. It would also restrain the spirit of meanness and injustice referred to, and, in case of premature injustice through prejudice or misapprehension, afford an easy and honorable means of acknowledgment.

Indeed, we do not see but that the wisdom of enlightened statesmen has devised and evolved, in the patent laws, a system precisely suited to our wants, and can discover no occasion for dentists attempting to meddle with it, except it be for the regulation of special abuses which may grow out of a departure from the benign intent and spirit of the laws. We do hope the profession will meet this subject with enlarged, impartial and unselfish views. We hope they will hold themselves unprejudiced by party spirit—uninfluenced by the appeals of cupidity, jealousy or personal malice.

THE SPECIAL DRIFT.—PERSONAL.

We are obliged to say something with reference to the SPECIAL DRIFT of the article which has called forth the preceding remarks. This will be well enough understood by those who have noted the tenor of former writings by the same pen. It is easy to perceive what and whom, under plausible preliminaries and indirect approaches, it was designed to *hurt*. We understand that in the lectures of the writer to the students at the Dental school of which he is "emeritus professor," the center ideas around which his thoughts seemed to revolve were "patents" and "Wood's Metal," attacking them in season and out of season as moths attack a flame.

It will be recollected that at the first ebullition of personal spleen he *represented* this material as a *mercurial compound*, and with the evidence before him that the representation was untrue. This was done against my emphatic statement that "it contained no mercury," thus impeaching my veracity before the profession, and also affixing injurious personal imputations by innuendo. (He did not then appear to be restrained by the "fear of prosecution" as he now affects to be.) At the same time he claimed to have himself discovered and used a precisely similar material years before: of which he said "it was no better than amalgam *except* that it contained less mercury," which statement proves that, with the facts before him, he must have known they were not similar. Thus, in effect branding me with falsehood, both as to the composition of the material and my claim to novelty, and with the facts in hand to know that both these representations for my impeachment were untrue. This had the effect to prejudice patronage, and to tempt the profession to infringe upon the patent; regardless, it would seem, to what expense and trouble he might subject his readers in way of litigation, only so as to crush the object of displeasure.

The journal containing these representations were circulated broadcast to subscribers and also to non-subscribers. They were followed up in the next number by a series of artfully collated misrepresentations, by the pen of the publisher, calculated to confirm and back up the former statements, when the publisher had the evidence before him to know they were untrue. (I need not allude to his cunningly shaped *advertisement*, and the invidious impression conveyed). This was followed up, in succeeding numbers, by various disparaging innuendoes and allusions, and even direct references to the former statements, but not one line by way of retraction. These were succeeded by an article from the pen of the editor of the Review Department, (who had before exhibited an overweening desire to mix in,) holding the obtaining of dental patents unprofessional and contrary to *ethics*, and recommending the exclusion from dental societies of those engaged in "such transactions," as the proper means of "resisting unjust encroachments or taxation on the part of *unprincipled men whether calling themselves dentists or not*;" knowing, as he could not have failed to, that a remark of this kind taken in connection with the former representations, would be likely to be given a personal application in confirmation of them; and having also the means before him to know them untrue, and that, too, after a full exposure had been published in a contemporary journal, (which, I am sorry to say, received the censure of certain —*flunkies*— for giving it a hearing; although it could not with justness or consistency have denied it had it desired).

Since then, there have appeared frequent articles from the editor first quoted, in disparagement of the material in question, but no correction has yet been made, and probably dare not be made, as it might shake confidence on other points in the minds of thousands who will probably, as it is, retain the impressions conveyed, unto the time of their death. I may say, however, that all the definite objection to the material which has appeared from that source up to the present writing, in addition to that of its being a "mercurial compound" "no better than amalgam, *except* that it contained less mercury," consists in that it requires heat, that it is difficult to remove from cavities, and that reckless operators have made bad plugs with it.

What may have been offered *privately*, or to "the class," I know not. But it appears the parties have not been idle. Says a letter received from Philadelphia:

"The license system does not seem to take well here at present, owing from what I learn, to a great extent to the influence of S. S. and J. D. White."

And another:—"J. D. and S. S. White, as I understand, have had a great deal to say against the Metal."

Now at last, in an article striking under the head of patents, and seeking to ridicule from the purchase of licenses, by "calling down the laugh of every *washerwoman* and *plowman*," we have the mystery of pretended silence solved, in the "fear of prosecution." It is implied that a great deal *might* be urged—but it is complained that, although "we feel that we have a right, nay it is our duty to express opinion;" yet, alas, "we are rendering ourselves amenable to prosecution by law, for daring to express opinions." Then comes the induction against patents: "If patentees are allowed to *thrust* articles upon the profession . . . . . and the *fear* of *persecution* is to shut his mouth so that it is passed over in silence, *and forced upon the inexperienced*," then patents should cease, &c. And then follows the protest against having a right to "restrain opinion." !—"The wicked flee when no man pursueth." If this "fear" can restrain the utterance of mere opinions, why did it not in the false statement of facts. But if "conscience makes cowards of us all," it too often happens that it "cries, 'I warned you,' *when the deed is o'er*."

We shall probably see, hereafter, how far this "fear" and "restraint" is real, and how far affected partly with a view of exciting sympathy, and partly for the purpose of starting by *innuendo*, prejudices, which even the writer might have some scruples to convey in words. It is said, one who is partly intoxicated can best mimic a drunkard; so probably a guilty conscience can best affect fear of the law, and, perhaps, best of all if it will subserve some other guilty purpose.

We care nothing for the expression of any man's opinion, for or against. In that any one may *honestly* err; but we hold every one morally responsible in the statement of *fact*, in regard to which he is, or can be fully informed.

It will not do to connive in such case, on the score of influential position, nor because of continued patronage and countenance on the part of respectable persons. Neither will it do for such persons to set up a plea on the side of power and influence, in self-extenuation. Sooner or later, every man must be judged by his adherence to truth and duty, to the best of his present light and honest convictions. And the gain, favor or notoriety of a few days or years, will be no compensation for the loss of moral stature and proportion, sustained by crouching when he might have stood erect.

IMPROVEMENT IN CONTINUOUS GUM WORK — NEW LIGHT BREAKING UPON A VEXED QUESTION.

We quote the following from the Proceedings of the Odontographic Society of Pennsylvania, as reported by Dr. R. J. Hoffner. We quote it not so much by way of announcement of the improvement referred to, the essential details of which appear not yet to have been communicated to the Profession, but because of its suggestiveness in an ethical point of view, and as an earnest of day-light dawning — in one direction at least — upon a subject hitherto much darkened.

"Dr. Moffatt of Harrisburg, presented an upper set of teeth, on a platina base, somewhat similar to continuous gum work, and which he styles non-sectional block work. It differs from ordinary continuous gum work in the fact that the gum and teeth are carved from one piece, and the material composing them are of such a nature that there is no danger of warping the case by shrinkage during baking. The body material is so weak that it will tear and not move the plate, while it has strength enough for all the ordinary requirements in an artificial substitute. The breaks in the case can then be readily repaired by a second baking, after the addition of a sufficient amount of the proper material. This work was patented in 1860; but Dr. Moffatt has no desire that it shall be withheld from the profession on that account. He patented it for the purpose of having the fact of its being his invention recognized, and is now willing that the profession shall have the full benefit of it.

Dr. Flagg moved a special vote of thanks to Dr. Moffatt for his present, and especially for his liberality in allowing the profession to make full use of his improvement. He was opposed to patents in general when taken out by practicing dentists; but thought that Dr. Moffatt had shown his wisdom in securing for himself the recognition of the improvement as his own, while he did not withhold it from his fellow-practitioners.

Dr. Tees said that, as proof of his sincerity in stating that he wished the profession to avail itself of his invention, Dr. Moffatt was ready at any time to give instructions to any who might desire to learn the process by which the work that he had described was done."

It would have been interesting to have been put in full possession of the details as to the special components of the material mentioned, and the precise manner of compounding them, so that any operator or manufacturer, skilled in that kind of work, might appropriate the improvement to his use and benefit. Doubtless the inventor communicated to the society full information in regard to these things; why should the society withhold it from the rest of the profession? The specification may indeed be "full and exact" as required by law, so that any one skilled in the art may make, compound and use the same thing without needless experimentation, and it is accessible to those taking the necessary steps, but this involves some expenditure of time and money, so that the great mass of the profession do not obtain the full benefit of the gift, considering it in a pecuniary point —which really appears to be the point at issue. Thus far, nothing appears to be gained, and if money must be paid, why not as well pay it directly to the inventor, who, if disposed, could re-invest it towards other improvements for the common benefit. But, it appears, instructions are required to learn the process, which, however, the inventor is willing to impart. But he cannot be expected to visit all of the profession for this purpose, nor to pay the traveling expenses of those who might come to him. And without this, his invention is attended with a *tax* upon the profession—the head and front of offending in the case of patents—which were more likely to be utilized if bestowed as above. Few, indeed, can afford to develop improvements and instruct others in their uses without compensation, and if they did, it would be a mistaken generosity, resulting in no real benefit to any one.

There are some very crude ideas, as to the nature and purpose of patenting, embodied in the remarks quoted. It is said, that, although the work is patented, the inventor has no desire his improvement "shall be withheld from the profession on that account."

The very object of patenting is to communicate and not withhold, and the purpose of the patent laws is to enable inventors to develope and communicate. All patents are open, for a consideration, which seldom amounts to an equivalent for the time and expense bestowed, but without which there would be an end to progress. The same principle applies to every product of art, genius or skill.

But the wisdom of patenting, *in order to secure to one's self the recognition of his improvement* as his own, is conceded, especially if he do not "*withhold it* from his fellow practitioners," which "withholding," divested of its ambiguity, simply means, if he do not ask any remuneration from the profession. Societies, then, instead of voting exclusion from membership, make haste to vote thanks and commendation. It illustrates the consistency of the opposition to patents, and the real ground from which it springs, in singular accord with the whole history and line of argumentation in the premises.

But if it be required to surrender one's pecuniary interest in his own to "his fellow practitioners," why not to surrender the claim to recognition also? why not also freely give, or at least divide, the honor with an honorable and honor-seeking profession! With many this is more coveted than mere pecuniary advantage, and they would willingly pay a round price for it.

Is it less wise and expedient to secure one's *property* than the "bubble reputation?"

"Opposed to patents generally — *when taken out by practicing dentists*"! *But*, and *if* we can enjoy the benefit at the expense of the inventor, our conscientious scruples subside. To claim compensation is, of course, to "withhold from the profession." To what straits is the opposition to patents driven! We trust it will lead to a full reconsideration, upon rational and unselfish principles. We are truly glad to see the light breaking through in one direction.

EDITORIAL.

We reproduce from the *Southern Journal of the Medical and Physical Sciences* for 1853, an article upon the claims of medical science upon the attention of dentists, which expresses our present views and will, perhaps, as well fulfil the intention expressed in our last, as though presented in entirely new form and language. As the journal copied from was confined in circulation almost exclusively to the section in which it was published, and scarcely known in this latitude, it will render an apology on the score of repetition unnecessary. We trust the views advocated will not be construed as militant against the system of dental schools, as they were at the time in certain quarters (where the offense appears not yet to have been entirely forgotten) but that they will, on the contrary, be found to harmonize with the teachings of the most enlightened instructors in these institutions at the present day. Moreover, they cannot be ascribed as intended to have a bearing upon new issues, as might have been the case had they been recently written.

PROCEEDINGS OF THE MISSISSIPPI VALLEY ASSOCIATION.

We cannot commend too highly the Discussions elecited at the late meeting of this veteran Society, a portion of which, relating to Filling Teeth, may be found in this No. of the *Examiner*. For the rest we refer to the journal from which we have copied. To the Phonographer is due great praise for the fidelity of his report, and the discrimination displayed in seizing and presenting in clear light the points of essential interest. We regard these Discussions, and the Report of them, as models of their kind, in contrast, on the one hand, with the routine of platitudes too frequently exhibited, and, on the other, with those scenic displays, which serve little else than to advertise the actors, but barren of instruction except so far as might be found in our text books. We observe, however, a sensible improvement in the proceedings of our societies generally, in presenting us with substantial ideas and information rather than with personages and mere words.

There is still room for improvement in this direction. And, if nothing were offered at our societies, or reported through the journals, which might already be found in our standard books, it would greatly diminish the useless consumption of time in the one, and of space in the other. Of course, absolute originality ought not be exacted, for old ideas and modes will bear and often require a certain degree of amplification. But the simple reiteration of what may be found in dental authors might be ruled "out of order," without detriment to science.

THE CENTRAL STATES ASSOCIATION OF DENTAL SURGEONS.

The second annual meeting of this Association will be held in the city of Louisville, Ky., at the Kentucky Medical College, commencing on Tuesday, July 18th, at 10 o'clock A. M.

W. H. SHADOAN,
Secretary.

The above society, recently organized in the Southwestern States, gives large promise of usefulness. It has an extensive field of labor to work in and doubtless will do good work. We are pleased to recognize the names of some old friends in the list of officers.

THE NEW YORK STATE DENTAL DELEGATION.

This Association, which was organized at the preliminary meeting on the 4th of April last, holds its first regular meeting in this city, at Association Hall, on Thursday the 20th of July, commencing at 10 A. M. It is expected it will be a general convention of dentists in the State, at which all may feel free to take part. Although organized upon the representative plan, the constitution expressly provides that local societies may send their entire membership as delegates; and it is generally understood that at this, the *first regular meeting*, dentists in isolated localities who may not have had an opportunity to connect themselves with local societies, will not be excluded membership on account of this informality.

THE

DENTAL CIRCULAR AND EXAMINER.

VOL. I.] ALBANY, N. Y., OCTOBER, 1865. [No. 4.

DENTAL PATENTS.

RECENT VIEWS OF THE LATE OPPOSITION.

We have had in contemplation a somewhat extended examination into the merits of this question, through the *Examiner*, wherever the real position of the profession, especially the opposition, in regard to it should be clearly developed. Entitled to consideration in itself, in view of its bearings upon the problem of professional progress, and invested with increased interest in consequence of having become an object of disputation, its claims cannot well be ignored, but must ere long receive a full and candid discussion before the whole profession.

It is not to be expected that journals already committed against patents should be over ready to entertain and communicate facts and reasoning upon the other side, serving to convict them of prematurity or inconsistency, much less to come at once into collision with prejudices hitherto countenanced, if not fomented by themselves. And, however desirable, in a liberal profession, which should be free from partyism and partizan organs, to have the issues squarely met through the same mediums and before the same readers, we know that competent writers have refrained from a discussion, which, if acceptable upon a question assumed to have been settled, could not be treated with the directness and cogency required in the premises, without risk of giving offence even to the very ones through whose courtesy they would be indebted for a hearing. Accordingly the opposition to patents have been left, for the most part, to occupy the field by themselves, and to adjudicate upon their own testimony.

Considering the nature of the subject and the conditions which surrounds it, we have already devoted some attention to it, and should feel justified in giving it far greater prominence in our columns than we have done. But not to undertake at this time an elaborate discussion, which, we trust, if called for, may be conducted by some abler pen, we shall confine ourself to ascertaining the position of the opposition, so far as drawn out, so as to deduce wherein and upon what grounds there exists an actual difference of opinion.

It may be proper to premise a few remarks. But we wish to say here, that we are dealing with Principles, without respect to any one's particular inventions, patents or improvements, which, however affording occasion for utterance, or serving for illustration, do not effect the question any more than if they had not existed.

That which is accepted as lawful, right, and beneficial for community as a whole, ought to be respected. And no class have a right to set up special pleas for shirking the general obligations of patriotism, law, or morality which they must concede to be binding upon others.

The Constitution of the United States vests Congress with power, "To promote the progress of science and useful arts by securing for limited periods to Authors and Inventors the exclusive right to their respective writings and discoveries." In accordance with this, Congress framed our patent laws, eminently calculated to promote the above object, and, surely, as obligatory upon good citizens as the laws protecting any other species of property or right. All enlightened nations have adopted a similar system for the promotion of the same end. Thus, it appears, that the mature and accumulated wisdom of past and present time endorses the patent system as essential to the promotion of the progress of science and useful arts, and, consequently, the interests of humanity which these subserve. It therefore becomes those who war against this system to show that the best wisdom of the world is at fault on this point, and to offer a better expedient, or to confess themselves inimical to the progress of science and art. If, in holding to it, we are pointed, as *authority*, to certain dental writers who oppose it, some of whom it must be admitted betray but vague and limited conceptions as to its nature and import, we cast in the other scale the weight of the authority above referred to. We are, nevertheless, ready to yield to just argument — which is truth — but to expect us to yield without argument would be an assumption unparalleled.

We think an appeal to the facts of history would prove the patent system one of the most efficient means devised for stimulating genius, developing invention, advancing the useful arts, rewarding merit, inducing an honest recognition of just rights, and rendering honor to whom it is due;— that the advantage of letters patent have been availed of by good men everywhere, being, moreover, held in most countries as credentials of highest honor;— that real discoveries which have been adapted and applied to practical use have generally been patented;— that the seeming exceptional cases were usually such as were not so applied, or for other cause *not patentable;*— that all this holds in the dental profession as well as elsewhere. It must be remembered that a mere discovery is not patentable. To make it so it must be applied to a useful purpose. Thus, the discovery of the expansive power of steam would not be patentable, but its successful application as a motor power to machinery, etc., would be. Neither is *skill*, or excellence in execution, patentable. It must be an *invention*, or a new production serving a useful purpose. The use of the mallet for filling teeth, although an improvement, could not have been patented by those who have brought it into successful practice, because it had been made and used before. The improvement consists in the superior *skill* in using it, which is not patentable. So of the improved use of the wedge for separating teeth. So of a remedy, having a known effect upon part of the body, and applied with a similar effect upon another part, as arsenic applied to a *dental* nerve. So of the improved artificial palates, whose usefulness consists in the superior *skill* in mechanism and adaptation over former similar appliances which were comparatively unsuccessful for want of this; although any additions, substantially different from those known or used before, might be patentable. *Skill* is self protected and does not require a patent. It cannot be patented because it cannot be described or communicated so that others can at once exercise it. Once attained, it has sufficient vantage ground over competitors, since each must be at similar pains and training before he can practice it, and even then the one who had the priority still holds the advantage in way of *reputation*:—whereas, an invention or applied discovery, when once produced, at whatever previous cost, may be immediately copied and practised by others, without preliminary labor or expenditure, leaving it to monied monopolies to step forward and reap the fruits. So that, without protection, invention would measurably cease among the great masses where now it is so prolific in benefits to mankind.

But we digress too far from the object with which we set out, viz: to ascertain the real position of the opposition to dental patents, and see wherein we differ. In order to do this we quote from those who have more recently given public expression on the subject.

Quoting in the order of time, we take the following from the *Dental Register of the West*, a journal which, although professedly opposed to patents, is conducted with liberality and fairness, evincing a disposition to do justice to all parties, and which may be considered the exponent of that class who are honest in their opposition, having a sincere regard for what they regard as principle and the common good, unbiassed by special or personal considerations. The remarks refer to the Hard Rubber patent, and proceed by stating the position that;

"The patent in reference to Hard Rubber originated entirely outside of the Dental profession. * * * * * * *

If dentists may go on, and indiscriminately employ hard rubber, then other parties who desire to do so, may go on and manufacture any arti whatever, regardless of the patent. * * * * *

"Our personal feelings are against patents in the profession, but is an outside patent, one that comes into the profession incidentally, in order that the patent be valid anywhere, it must be protected. If dental profession may use it with impunity, and justly, without g then everybody else may do the same thing, and hence it is neces to protect the interest of the patentee here, or give it up everywhere. Co the dentist take up any other outside patent, take for instance tha any patented machinery, and use it in the exercise of his profession, wo it be just, or would he expect to use it in defiance if grant or licen Nevertheless we are opposed to all patents* that originate in the profess with professional men, as such."—*Dental Register*, March, 1863.

The remarks quoted virtually concede that patents outside of the fession are right, that the rights of patentees ought to be respected, it would be obviously unjust to infringe upon *them*, although leavi to be inferred that it would not be had they originated in the profes with dentists. Now, we put it to the writer, would he have appeal this natural sense of justice in behalf of the patentee if a professional ther? For the appeal is predicated upon the ground of the pa originating outside. He is opposed to all dental patents originating dentists. This opposition surely must be founded upon some conce of *wrong*, and can not otherwise be justified. And if *wrong*, the *w* *doer* ought, of course, to suffer. We wait anxiously for some definite consistent reasons for this discrimination.

We next come to the proceedings of certain Societies, which appear only to convey imputations of wrong but to designate penalties. Th resolutions will serve for mutual interpretation. One resolves that it expedient to form a "Protective Union," vested with funds, with the view of litigating the "numerous claims" of "numerous patentees," and promising that "by combining our interests, we can effectually resist all claims not well founded in law." Another, "That it is inexpedient for us to purchase the right to use any dental patent, the validity of which has not been definitely determined;" which means that the patentee must first be denied patronage and subjected to litigation.

And another, "That it is the duty of every dental practitioner to patronize no man or firm who is connected, in any manner, with companies or individuals who are attempting unjustly to claim of them remuneration for so called patents." The words "unjustly" and "so called" might perhaps have been omitted; for, who are to judge on these points until, in the process of definitely determining the case by litigation, a measure of "punishment" should have already been inflicted? A degree of criminality is assumed to start with, great enough to be visited not only upon the principals, but upon all who are "connected *in any manner*" with them.

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* We suppose we may safely say, that in speaking of "all patents," the writer means "all *dental* patents," as probably he and no one else would object to a dentist taking out a patent outside of the profession — as for a plow, gun, machine, etc.

It will be seen, however, that the drift of the above relates to *dental* patents claiming *remuneration of the profession*, while the qualifications thrown in, clearly concede the right of *valid* patents and *just* claims, but without recommending any voluntary recognition or remuneration. Surely, our intelligent and liberal profession ought to be able to determine as to the merits of *dental* improvements and willing to accord just remuneration, without first plunging the inventors into litigation.

Succeeding to the foregoing, we quote the following views from an editorial in a journal belonging to a patentee outside of the profession (though deriving a large income by sales thereto), in which the discrimination between outside and inside patents is distinctly drawn.

Referring to the organizations formed to contest "certain patents from which the patentees were deriving a large income by sales to the dental profession," it concedes, "That any person who makes an improvement in mechanics, is entitled to take out a patent and derive all the pecuniary benefit that may accrue from the sale of the same, is a matter settled beyond a question of doubt by the laws of the land;" and that in case of litigation if the claim is well founded, "the courts will be compelled and should decide the case in favor of the patentee, according to law." But, while admitting that the "custom and commerce of the world sanction and justify the act," the writer adjudges the taking out of any patent by dental practitioners "for any thing relating to the practice of dentistry, either mechanical or operative," to be a *professional* or *ethical* offence, and recommends visiting it with the penalty of exclusion from dental societies; dictating that the profession assume the position "that its practitioners shall not take out patents for any thing employed by them in their professional duties," though tacitly leaving them free to take out patents for other things. The writer, however, emphatically disavows any wish to have his principles apply to "non-professional men;" they, he says, are outside of the profession, and can not be considered as coming under the government and control proposed; they may even come into dental societies, as *honorary* members, over the disability set up to debar dentists, &c.

Advancing in order of time, we find in the proceedings of a respectable dental Society (the writer last cited being a member and present), that a vote of thanks was offered one of its members for the present of a patent improvement—patented in 1860, "*for the purpose of having his invention recognized*," and now given to the profession. The mover expressed himself "opposed to patents in general when taken out by practicing dentists," but held that the inventor "had shown his wisdom in securing for himself the recognition of the improvement as his own, while he did not withhold it from his fellow practitioners;" or in other words did not require remuneration of them for the use of it. We do not find that this met with any dissent, and may, therefore, take it as representing the sense of the Society.

To the foregoing we add the views most recently expressed of a noted leader in the opposition. They are similar to those of his editorial colaborer just before referred to. He objects to the mode of opposing patents by litigation; "first, because it brings one class of men in legal conflict with another; and second, because it pre-supposes that no one has a right to letters patent which his government may see proper to confer upon him." "The patent laws," he admits, "are doubtless the stimulus to invention, advancement and improvement in the mechanic arts in every direction, as well as in dentistry." Therefore he suggests a "different course" for discouraging patents in our specially, viz: "Let the profession be divided into two distinst branches. Let every one who invents, or thinks he has improved any mechanical thing, or material, or appliance, have the right which the laws of the country guarantee to him; but he who thinks differently, *let him set himself aside from association with him, as a true professional man.*" Thus the mechanical branch — the "publicans and sinners" are permitted to enjoy this stimulus to invention, advancement and improvement; but the "true professional" branch — the "scribes, pharisees — hypocrites!" must stand aloof. However, this is a pretty large surrender to the allegiance of government and law, to be made by a veteran in the rebellion. Perhaps some one will capitulate the other branch presently.

In the foregoing we find a progressive concession by opponents of patents, that the system is just, necessary and beneficent, and ought to be respected outside of the profession: that it is right for non-professional men to patent, and claim remuneration for their inventions — even right for them to patent inside the profession, and, conversely, right for dentists to patent outside; that it is right for a branch of the profession to obtain dental patents with a view to remuneration, although they must be made to suffer some disrepute for it; and that it is right and honorable for all to obtain them for the purpose of securing to themselves a recognition of their improvements, provided they surrender the benefits to the profession without remuneration. This narrows down the issue to a very small point, viz: whether it be consistent with the maintenance of honorable *caste* in the profession for *dentists* to obtain *dental* patents with a view to remuneration.

We now quote some remarks applicable to this point, which, with some verbal changes, might suffice to settle all difference of opinion in regard to it. They are the latest we have seen from professed opponents of patents. They are from an address, delivered before the Massachusetts Dental Society, by the chairman of the committee originating the late "Dental Protective Union," whose "Circular" stirred up the recent commotion against patents. The author is advocating a system of *personal instruction.*

> "We owe it to ourselves to make ours a liberal profession. Without enumerating all that a liberal profession comprises, we may safely say that it requires those of its members, who have, through their own efforts or the teachings of those who have preceded them, *made improvements in dental science, to perpetuate those improvements for the benefit of succeeding generations;* and under no circumstances whatever, to desire or even to consent that those improvements should *live* and *die* with themselves alone."

This, it will be observed, is precisely the purpose and effect of the patent system — to encourage men to make open, or patent, their discoveries or improvements for the benefit of succeeding generations, by according legal recognition of them, and granting a proprietary interest in them for a limited period, sufficient to afford adequate remuneration, so that they need not be retained as secrets to die with the originators The writer continues:

> "In what way those improvements shall be communicated, is, no doubt, an important and difficult point to be decided. It is, perhaps, equally difficult to decide *what shall be the compensation* for valuable contributions to knowledge. In my opinion, the very best mode of communication is by *personal* instruction. Let those who would be taught form classes, and engage gentlemen of the highest talents and and acquirements to communicate to them, *for a liberal compensation*, by lectures, and demonstrations in the laboratory, their discoveries and improvements.
>
> "This mode of instruction has its limits. It can not be a complete substitute for a college for training dentists. But it *has the advantage that it recognizes the right of property acquired by one's own research.* It is an honorable way in which such knowledge may be imparted and received, without the intervention of patents, so universally disliked by the profession."

Might not the writer have added something to remove this "dislike," which he has been instrumental in fostering, seeing that he recognizes the obligation and necessity of *compensation by the profession* — the only remaining ground of hostility to patents?

We quote the following from its pertinency to this question of remuneration.

"Our Society should recognize the mutual obligations of the members of the profession. All must admit that a profession as a whole must be supported. *It would not be right for a dentist who is rich to give his services gratuitously to all who might call upon him.* No member of the profession ought to feel himself injured, if some one who has obtained the confidence of the community by years of toil, which may have well nigh destroyed his health, can and does, command large fees which are beyond his own reach."

So, also, those who dedicate their energies to develop and enlarge the resources and facilities of the profession ought to be sustained as a class, nor should we envy them a just remuneration for the results of their labors.

But there are peculiar reasons why dentists especially, should have the full encouragement and protection of letters patent. The following remarks from the writer just quoted are significant in application on this point.

"In extending our business we soon reach the limit beyond which success cannot reasonably be anticipated. The effect of a lame hand, or of an overtaxed nervous system, or of eyes highly strained — contingengencies which happen more frequently in our profession than in most others — will sooner or later admonish us that our professional days are rapidly passing away. These considerations, furthermore, teach us that we should make systematic preparation for the support of our families, for carryiug forward the benevolent objects of the day, and for the expansion of our own minds and hearts — that, in brief, we should seek to make ours a truly liberal profession."

Yes, a "truly liberal profession," not only in each man strengthening his own hand and filling his own storehouse against the day of need, or for filial or charitable purposes, but in assisting professional brethren to do so also — sustaining and encouraging each other, without narrow jealousy or envy, cheering our colaborers in every good word and work, recognizing and rewarding meritorious productions of skill and genius, and especially extending a liberal hand to those among us who forego or expend much of the emoluments of their profession in their devotion to research and improvement for the common good.

There are many whose minds naturally run into some channel of investigation or invention. They could not help it if they would. While others spend their leisure in pleasure, or in "electioneering" for patronage, perhaps to the disparagement of professional brethren, they are at their silent labors. While others are "pushing their business," they are pushing their inquiries. If it is expedient to claim ample remuneration against the contingencies of life in the one case, it is surely expedient to award the same in the other. Improvements cannot be developed without pecuniary sacrifice. And dentists, in view of the considerations above quoted, can afford this less than most others, unless protected in the fruits of their labors when completed. Hence they require and should be allowed the full encouragement and protection afforded by letters patent. Here improvements find a legal mode of recognition and remuneration, with the advantage of being sustained, not by the fitful charities of a few, leaving the many to shirk all obligation, but by all who enjoy their benefits.

It will be seen that the foregoing extracts, in their aggregation and connection, virtually yield the *whole argument* against patents. Why then, these persistent efforts to attach to them some idea of criminality or disrepute? Why make them an occasion for injuring the reputation of others in the profession? Why, for this purpose, set up a standard of "*ethics*" in relation thereto, in violation of all just principles of ethics or professional etiquette? Why dishonor our Government and its laws by thus evading and thwarting their beneficent intention? Can our opponents offer any justification or consistent explanation for the course pursued?

We intended to have examined briefly the relative advantages of the patent system and other means proposed in lieu thereof for stimulating and rewarding invention and research, but the space already occupied by our quotations forbid the comparison at this time. We may say, that we cannot perceive what benefit is to accrue from the effort to put down patents. If successful it would only encourage *secret* preparations and processes. It cripples the usefulness of our dental schools which ignore or are presumed to ignore patents. Intelligent men cannot conscientiously recommend them, neither will students so generally resort to them as if supposed to give full information and instruction upon every thing which it is their business to teach. The very fact of entertaining and inculcating prejudices against a certain class of improvements will send the most enquiring and ambitious students to private instructors, of whom they can hope to learn whatever is of practical value. It hampers the usefulness of our societies, by keeping away many of the most progressive and useful class of men, whether patentees or not, since those who *use* patented articles, are as liable to slur on this score as the patentees themselves, besides foreseeing what a lever it affords for breaking up any dental society. Meanwhile dental patents will continue to be obtained by dentists for whatever is really valuable and patentable, and those who use them will be sustained by the great public to whose impartial judgment we must all defer in the end.

RUBBER WORK.

BY SAM'L JACKSON.

A good deal has been said about the shrinking and warping of rubber plates, and means have been suggested for overcoming this difficulty, one way being to not open the flask until it is quite cold. It would of course be imprudent to attempt to take a plate out of the flask while still hot enough to be pliable, but every dentist knows that nothwithstanding every care and precaution in making, when the finished piece is placed in the mouth it sometimes either "falls down," or is held in *situ* only by the slight tenure of cohesion.

I conceive that, instead of a disadvantage, the contraction of rubber is an accident favorable to its employment by the dentist. This shrinkage is required to compensate for the inevitable expansion of the plaster, which occurs both in the impression and the cast.

Yet, so rarely does a rubber plate fit the mouth *properly* at first, that I am in the habit of making an extra cast upon which to change the shape of the plate. In adjusting a finished plate to the mouth, I always examine the adaptation of the posterior edge to the arch, using for this purpose a light smooth probe with the point bent back at an angle of 45 degrees with the shaft. This enables me to discover any space between the plate and the mouth. It is necessary to obliterate these spaces even if the plate adheres well, for food and fluids will otherwise work under and dislodge the plate.

If the case is a full upper set I cut away the cast (which should have a coat of shellac varnish) on the labial and buccal sides until the plate will go over it. I next warm the whole plate carefully over a small lamp until it is pliable, and placing it on the cast press down particularly on the posterior edge, being careful to avoid the air chamber. I next place the piece in the mouth and examine with the probe. If the plate rests too hard on the median line, and "rocks," I remedy it by placing small pieces of card paper of the requisite thickness on the cast at that part, and again warm and adapt the plate. By scraping away the cast at some parts, and applying paper to others, the plate may be readily brought to a good fit. A decided improvement can often be made in the adhesion of partial sets, by simply placing a strip of card paper, $\frac{3}{8}$ of an inch wide, transversely on the cast across the air chamber. The strip may extend nearly to the edge of the plate.

Winona, Minn.

THE BREATH.

BY J. N. FARRAR, D.D.S.

An adult breathes out nearly two pounds of water per day.* Is not here, sufficient reason to account for the difficulty sometimes of packing gold in the teeth of some of our patients?

It is our great object to keep the gold dry; if we are not able to do that, every dentist knows with what difficulty he sometimes meets, in order to perform a good operation.

Two pounds of water would wet a large amount of gold were it all applied, and this large amount of water in the breath, it seems to me, is worth remembering.

By experiments I am convinced that if I can get my patient to *breathe through the nares* and *not through the mouth*, I can fill a tooth better, easier and quicker.

If any one is inclined to differ with me, he should go to a window on some cold morning and breathe upon the glass half a minute, and examine the thick coat of moisture in such quantities as to run down the glass. I think this will satisfy him that there is moisture enough in the breath to very materially affect the packing of gold in some of the long and difficult operations.

I find, however, by these experiments, that there are many people who cannot breathe entirely through the nose when the mouth is open. They seem to be wanting in the power to control the muscles of the soft palate and half arches; therefore cannot close the posterier part of the mouth. Hence we cannot expect all of our patients to be able to do this.

If any one will try a few operations by this means, I think he will be satisfied that there is considerable difference between filling in the breath and out.

By this *modus operandi* the breath of the patient is not carried directly into the operator's face, as is often the case otherwise, which we all know is not always pleasant.

Curacoa, *W. I.*

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*The amount of watery vapor exhaled, varies, of course, according to the quantity of air which passes through the lungs, being different with different persons, and under different conditions — ranging from 6 to 27 oz., the usual range being from 16 to 20 oz., Troy weight. To effectually preclude any aqueous deposition from the breath upon metals used in the operation of filling teeth, the material should be introduced at a temperature high enough to dispel moisture.

W.

DR. MOFFATT'S NON-SECTIONAL BLOCK WORK.

In our last No., we noticed the action of the Odontographic Society of Pennsylvania in relation to this invention, not so much by way of announcing the improvement, as for its bearing upon the question of patents. We now give Dr. Moffatt's description of his style of work as read before the Society, but which we had not seen at the time, although already published in the No. of the same journal immediately succeeding the one quoted from. The inadvertency happened from our having mislaid that No., instead of placing it in file as usual, and not noticing the break in the series when reviewing them in order to ascertain the nature of the improvement. Our attention was called to the subject again upon finding Dr. Moffatt's paper in the June No. of the *Dental Quarterly*, which came to hand soon after our issue was printed, and from which we quote below:

NON-SECTIONAL BLOCK WORK.

BY DR. JOHN W. MOFFATT, OF HARRISBURG, PA.

The nature of this work consists in the manufacture of teeth and gums, in one solid and homogeneous mass, upon a platina plate which has been fitted to the mouth of the subject, of the materials which I shall hereinafter specify. The formulas I am now using will be found to differ somewhat from those I had patented in 1860. To be brief I will first proceed to give a list of materials used; second, the proportions of these required for body, enamel, etc.; third, the manner of manipulating them to produce the final result, " non-sectional block-work."

First. The materials used are spar, silex, Bohemian glass, white French china, and, for coloring matter, titanium, platina sponge, and purple of Cassius.

Second. I take for *No.* 1 *Body*, spar, 12 ozs.; silex, 4 ozs. 6 dwts.; Bohemian glass, 45 grs.; French china, 30 grs.; titanium, 36 to 56 grs.; as the color desired may render proper.

For *Body No.* 2, use body No. 1 fused and ground to an impalpable powder.

For *Blue Enamel* No. 1, spar, 4 ozs.; Bohemian glass, 2 dwts.; platina sponge, from 1 to 5 grs.; gold mixture, 5 to 10 grs.

For *Blue Enamel* No. 2, take of No. 1 enamel 1 oz.; add 9 grs. Bohemian glass, and *grind very fine.*

Yellow Enamel made same as No. 1 blue, omitting the platina sponge and substituting titanium, 40 grs.; gold mixture, 20 grs.

Gum Enamel is made from a frit, composed of a purple of Cassius, 8 grs.; Bohemian glass, 11 dwts. 11 grs.; spar, 20 dwts. This is ground to impalpable fineness and packed into a crucible lined with a batter of silex. Lute a piece of fire-clay slab into the top. After it is dry, place it into the muffle of a furnace heated sufficient to fuse spar, for the space of fifteen or twenty minutes, after which grind fine and add 2½ dwts. spar, and 2½ dwts. Bohemian glass. Grind the whole very fine, and fuse to vitrification in an open crucible in the muffle of a furnace. This will produce the frit ready for making gum enamel; for making which take of frit, say 1 dwt.; Bohemian glass, 2 dwts., or in proportions to produce the proper shade of gum color.

Thirdly. After the plate is properly fitted, the articulation obtained, and matrix provided and applied to the plate, as for ordinary block-work, take a sufficient quantity of Body No. 1, mix it to a thick paste, and after oiling the matrix, pack it into the latter, tapping it with the finger to drive out any confined air. After the body is *packed in solid*, proceed to carve the teeth. After the exterior portion of the teeth and gums are carved, remove the matrix, carve the crowns and lingual parts, and before covering the palatal portion with body, enamel the teeth, by first mixing the enamels to consistency of cream with *soft water*, and laying on the yellow first at the neck of the tooth with a camel's hair pencil. Then the No. 1 blue is applied so as to overlap the yellow, and reach down over the cutting edge of the teeth. (This coming down of the enamel over the cutting edge will make sufficient allowance for shrinkage in length.) After the enameling is completed, and the teeth trimmed to the desired shape, proceed to cover the palatal portion of the plate with body No. 1, and carve, imitating nature as closely as possible.

The carving and enameling completed, the piece is ready for the baking process, which is accomplished by imbedding it in silex sand, in a slide or tray, the edges or rim of which should be from one-half to an inch in height, and allowing the sand to fill the palatal portion and cover all parts of the body, except the teeth or the parts enameled. It should then be introduced slowly into the muffle of a heated furnace. After it has come to the point of fusion, which requires from ten to fifteen minutes, it should be withdrawn and allowed to cool. Should there be found any imperfections in the piece, they must be remedied by applying No. 2 body to those which may be found in the body, and No. 2 enamel to those which may be found in the teeth; and then bake in the furnace as before. After the piece has again cooled it will be found perfect, and ready for the gum enamel, which is applied with a camel's hair pencil, in the usual manner; after which the piece is placed upon the slide, and introduced very slowly into the muffle of a furnace, allowing the heat to come upon it gradually, until the enamel flows, when it is withdrawn, placed in a muffle previously warmed, and allowed to cool; it will then be found that it has undergone scarcely any appreciable change in either length of teeth or form of the curve, and will be entirely free from the liability of cracking, shelling or breaking from exposure to sudden changes of temperature, as taking it from the mouth while warm and placing it in cold water, or from extremes of heat and cold while in the mouth.

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BRONZING TIN CASTINGS.—When clean, wash them with a mixture of one part each sulphate of iron and sulphate of copper, in 20 parts water; dry, and again wash with distilled vinegar, 11 parts, verdigris, 4 parts. When dry, polish with colcothar.—*Druggists' Circular.*

A RESUME OF METALS USED IN FILLING.

BY JAMES TRUMAN, D.D.S.

The *Dental Times* for July, contains a good article under this head, by Prof. Truman, of the Pennsylvania College of Dental Surgery, from which we quote the concluding portion relating to the Plastic Metallic Filling, wherein the writer states somewhat in full, such difficulties as he has experienced in the use of this material. In relation to the first — the heat required in its use — we would add, that for obviating this, the employment of suitable instruments provided *with bulbs for retaining the heat*, is quite essential. The instruments commonly resorted to, being without these *repositories* of *caloric*, and having comparatively thick shanks, conduct off the heat so rapidly, that the points of them must be raised to a temperature much above that actually required to fuse the metal, in order to allow of sufficient time for introducing it; thus the heat is at first greater than necessary and soon dissipated, entailing rapid transitions of temperature, and other inconveniences. Whereas, when the proper instruments are employed, the caloric accumulated in the bulbs (which should be heated instead of the points or blades), gradually flows to the metal as required while being moulded to the cavity. Nevertheless, the objection holds good to a certain extent in cases of highly irritable dentine, and is similar in kind, though inferior in degree, to that which holds against the extirpation of decay in the same cases. It is, however, attended with this compensating advantage, that the heat prevents any deposition of moisture on the material during its introduction.

The second objection is more important. The material cannot be used successfully in sub-aqueous filling. The cavity must be kept *dry*. Beneath the gums there is always enough exudation to hazard the perfection of the work: it is guess-work at the best. In such cases, we, as yet, have found no better expedient, if the curtain of gum cannot be extirpated, than to fill beneath it up to the free margin, with tin foil, Hill's Stopping, etc.; when the remaining portion can, if required, be filled with the fusible metal the same as ordinary crown cavities.

Having treated of gold foil, adhesive foil, sponge or crystal gold, and tin, the writer comes to notice the advantages and defects of the material in question under the caption of —

WOOD'S METAL.

The time that I have had this material in use has been too limited to test it, as time alone can do; but, so far as my experience has demonstrated, it is one of the most valuable additions to our stock of materials for filling teeth, and should receive the careful attention of those who desire to use a plastic material with all the advantages and none of the evils of amalgam. If anything I could say would induce any one to adopt it in preference to using the latter, I should feel that much had been gained for the interest of a suffering public. I recommend this metal the more freely, because its use will not have the tendency possessed by all plastic materials, of depreciating the quality of operations with other metals. The manipulation of this metal requires great care, combined with patience and experience.

The defects of the metal, as far as my observation has extended, are two. 1st. The heat required in its use. 2d. The impossibility of working it in the presence of moisture.

The first difficulty seemed to me an insurmountable objection, until, by use, the degree required was so much reduced, that the minimum amount for the metal, as at present prepared, was reached. I have since found less and less difficulty in this respect. Still, it must be acknowledged that upon very sensitive teeth, and upon those with the pulp nearly exposed, its use is attended with considerable pain. Much less suffering is experienced by covering the floor of the cavity with several layers of tin foil; but I would not recommend its use when there remained but a thin covering of dentine over the pulp. Further experience is necessary before we can take such risks.

The second objection is not so easily surmounted. I do not think it possible to fill a large cavity in the lower jaw when the secretion of saliva is excessive and cannot be controlled, with any certainty of its proving a successful operation. In consequence of this, I have experienced much trouble in securing perfect fillings where the cavity of decay extended beyond the neck of the tooth. This has been overcome, to some extent, by the use of a plate of tin foil overlapping the gum, but it must be acknowledged to be a very troublesome feature in the metal.

The explicit directions of the manufacturer, Dr. Wood, are ample for its use. Cut it into small square pieces, heating the instrument no higher than necessary to soften, not melting the metal, and beginning at the edges, pack as carefully with these pellets as though they were gold or tin, and substantially in the same manner. * * * *

AMALGAM.

It is not the intention of this article to take within its folds this material, neither will it hold it up to excessive execration. It has its uses, but they are limited in their extent, and should be persistently kept within these bounds. That amalgam has and will preserve teeth for years, is undoubtedly true; that it will discolor the tooth so filled, and render the mouth unpleasant to look upon, is equally true. That it can preserve teeth in *good* condition, I do not believe possible, except in the smallest number of cases. The shrinking of the metal and breaking away at the edges, is almost a necessary consequent upon its use. But I have long since ceased to regard any discussion upon this metal as very unprofitable labor. So long as disinclination to work forms a prominent trait in the constitution of all men, and the ambition to superior excellence the aim and desire of the few, so long will a plastic material of this character be used; and if it have no other merit, it may cover up, if I may be permitted an Irishism, a multitude of uncommitted sins.—*Dental Times.*

CHROMIC ACID AS A REMEDY FOR REMOVING THE SENSIBILITY OF DENTINE.

At the meeting of the New York State Dental Delegation last July, Dr. Wm. H. Atkinson, of New York city, brought to the notice of the Society the claims of CHROMIC ACID for obtunding the sensibility of irritable dentine, in the process of excavating a cavity preparatory to filling. He had tried this remedy with uniform success. It was not attended with pain like chloride of zinc and other escharotics, nor with any risk to the nerve pulp like arsenious acid, while its effect was almost instantaneous.

He described his manner of using it as follows:

Having removed the disintegrated portion of decay from the cavity, take up a small bit or crystal of the acid and apply it directly to the sensitive part, taking care not to let it touch the lips or gums. It may be taken up on the point of a gold probe, moistened to make the crystal adhere. Then saturate the cavity with creosote. It may remain from two to five minutes; meanwhile other cavities may be treated. It would do no harm to remain two or three days. A second or third application may be made, if, upon further excavation, the cavity prove sensitive.

The acid deliquesces upon exposure to the atmosphere, and in this semi-pastry condition is rubbed over the sensitive surface. The gum should be environed to protect it from the action of the acid during deliquescence.

The acid should be kept, securely corked, in a black bottle, or in a bottle covered with paper, to prevent any deterioration from exposure to the light.

CHROMIC ACID is thus described in the *New American Cyclopædia.*

"The peroxide [of chromium], is obtained in acicular crystals of beautiful ruby red color, which deliquesce on exposure to the air, and on being heated becomes almost black. At a red heat they are decomposed, being converted by the escape of oxygen into sesquioxide. The solar rays effect this change upon the solution when a piece of linen saturated with the liquid is exposed to them. Water dissolves the acid readily and becomes of a deep yellow brown. The solution has a sour metallic taste, and tinges the skin yellow. The readiness with which it parts with oxygen renders it a useful oxidizing agent in chemical operations. It also possesses bleaching properties, which lead to its being used as a substitute for chlorine in some styles of calico printing.

"Different processes of obtaining this acid are in use; perhaps the best is that of Mr. Warington. A cold, saturated solution of bichromate of potash is mixed with from one and a fifth to one and a half times the quantity of pure concentrated sulphuric acid. The mixture becomes hot, and is then allowed to cool. The chromic acid separates in brilliant prismatic crystals, which, taken from the liquor, are drained upon a piece of porous earthenware, the air being excluded by another piece placed upon them."

ALLOYS.

Every thoughtful metal worker who has his hands too full of his daily employment to spend much time in experimenting on the properties of the metals he uses, must have often wondered how it came to pass that with all our boasted knowledge of chemical and metallurgical subjects, we have as yet only succeeded in inventing some half-dozen useful alloys. Brass, pewter, gun metal, German silver, and type metal are really all the alloys that we can name as entering into the manufacture of the more common articles of trade in this country. The causes of this apathy in experimenting on the properties of mixed metals are manifold. The practical metal-worker of the present day is generally ignorant of the chemistry of the metals he uses; and even if he were well-informed, he would be too busy fighting the great battle of competition to set himself the extra task of experimenting upon alloys. But metal workers will turn round very naturally and ask how it is that practical chemists, whose business is to make experiments, do not investigate the capabilities of metallic mixtures more frequently than is at present the case. We fear very much that the only answer to be given to this is that scientific chemists of all countries have, almost without exception, been bitten with a mania for nearly exclusively pursuing their researches and expending their talents upon organic compounds.

This department of scientific chemistry is so vast and so fruitful in results, that it is quite a rarity to see an article in a scientific journal upon a metal or metallic compounds. Even those chemists who have not wholly given up the study of inorganic compounds seem to apply themselves to analytical observations or to the investigation of the rarer metals. As an example of the knowledge of the capabilities of alloys, we may instance the discovery lately made by M. Pelouze, of the French mint, that the best metal with which to alloy silver is zinc, and not copper as we have always believed. Now, considering that silver has been known from the remotest ages, and zinc, at any rate since the birth of modern chemistry, it seems singularly strange that no one ever thought of trying the effects of these two metals on one another until now. To take the case of iron, a mere cursory examination of the second volume of Percy's "Metallurgy" will show that some of the very simplest questions relating to this most common and important metal remain as yet unanswered. Such an apparently vital matter as the formation of steel is a bone of contention at nearly every meeting of the French Academy of Sciences, one party persisting in declaring that no steel can be made without the intervention of both nitrogen and carbon, while the other side as manfully contend that nitrogen has nothing to do with cementation, carbon being the only element concerned in the process. This example shows that not only does the action of one metal upon another in a state of combination, require patient study, but also the effect of the addition of varying proportions of the metalloids, such as carbon, phosphorus, silicon, sulphur, etc., to different metals, remains still to be discovered.— *Chemist and Druggist.*

CORRESPONDENCE.

OPINIONS OF THE PROFESSION RELATING TO THE PLASTIC METALLIC FILLING.

We intended to have given, from time to time, an expression of opinion in regard to this material, as communicated to us by members of the profession using it, but since our January issue have had our pages wholly preoccupied with other matter. The following will serve to reflect the current testimony of our business correspondence,— quoting as before from letters received from different localities throughout the country.

DR. J. D. RIGGS, New Haven, Conn., writes Jan. 8, 1865:

I like the metal very much, but have some trouble in making it tight in cavities where the gum overlaps, on account of moisture: Otherwise succeed well.

DR. VALENTINE SHERWOOD, Rondout, N. Y., Jan. 12, 1864:

I have used quite a quantity of it, and for ordinary fillings, I consider it the best in use.

DR. ENOS G. ROY, New York, Jan. 23d, 1865:

I recently filled a front tooth that was very much broken; I built up about two thirds of the tooth with your Plastic Filling, and then covered the surface with gold so that it had the appearance of a fine gold filling. * * I do not yet use it except in teeth which I cannot fill well with gold; in such cases I find it very convenient.

DR. LEWIS E. READING, Trenton, N. J., Jan. 24, 1865:

I have used your Plastic Filling to satisfaction, and desire a *License* for 5 years.

DR. G. B. MCDONNELS, Girard, Pa., Jan. 28, 1865:

Please send me two ingots Plastic Metallic Filling No. 3, by return mail, as I am out and find that I cannot get along without it. I am perfectly satisfied that it is all right and the very best filling in difficult cavities, and in every respect ahead of all material as a filling material, but gold; is better than gold for all large cavities in shelly and frail teeth.

From Dr. L. H. RICE, Johnstown, N. Y., Feb. 1st, 1865:

I am again in need of more of your Plastic Metallic Filling, and it is becoming so important an article in my laboratory that I could not dispense with its use on any account.

I have used it successfully for building up broken crowns of molar teeth, and in many cases have used it for filling front teeth.

One case I will mention. A Miss D—— called at my office, thinking to have all of her front teeth extracted, and subsequently an artificial denture inserted. Finding that the teeth were not destroyed (only looking very badly because decayed so much), I persuaded her to have them filled. The teeth were so frail that they would not admit of filling with any other material but your Plastic Metallic Filling, because it was necessary to build out where some of the portion of the teeth had broken away; and I hold there is no filling equal to the Plastic Filling for that purpose. The manipulation was every way satisfactory to both patient and operator. Six months have elapsed since, and those fillings are just as substantial and bright as they were the day they were made.

Please send me No. 3, and find the requisite amount enclosed.

Dr. E. P. ALDEN, Hoosick Falls, N. Y., Feb. 2, 1865:

I like the material better the longer I use it, and think it supersedes all materials used for filling teeth except gold.

Dr. E. W. FOSTER, Shelburne Falls, Mass., Feb. 14, 1865:

I am well pleased with it thus far, and my patients are delighted with it.

Dr. J. N. DAVENPORT, Northampton, Mass., Feb. 15, 1865:

I might as well keep house without a wife as a dental office without your metal.

Dr. J. C. WHINERY, Salem, Ohio, Feb. 23, 1865:

I have been using your "Plastic Metallic Filling" now for about one year, and believe it to be well adapted to the use for which it is designed. I have a large number of fillings of this material now in the mouths of patients, and wherever I have had the opportunity I have taken the pains to examine their condition after insertion, and have uniformly found them wearing well.

My impression of it is, that it is a *durable*, serviceable compound, much superior to the old Amalgam, or bone preparations, and that it stands next in order to gold as a material for filling teeth.

DR. H. R. SCOTT, Franklin, N. Y., Feb. 25, 1865:

I like it much.

DR. T. M. HIGGINS, Havana, Ill., Mar. 2, 1865:

The "Plastic Metallic Filling" suits me well. With some globular pointed pluggers, I think it could be used with perfect success.

DR. R. S. BANCROFT, Romeo, Mich., March 10, 1865:

It is a splendid thing, although it requires much practice to use it with facility.

DR. G. W. NICHOLS, Davenport, Iowa, March, 1865:

I shall ever consider myself under obligations for the introduction of the Plastic Metallic Filling; it renders the use of mercurial compounds unnecessary.

DR. —— writes, March 16, 1855:

I have not used it much yet; did not succeed (when I tried it) as well as I anticipated, but shall try it again. Perhaps practice is needed in manipulating.

[Yes, it needs practice—daily practice—the same as did gold and tin foil when we were beginners with them. Experiment at first on cavities in extracted teeth until you learn the proper *working* condition of the metal, and the use of the instruments.]

DR. WM. ALLENDER, New London, Ct., March 15, 1865:

I have been using your Metallic Filling since I opened my office here, which was last August. * * *

Next to gold, I like it better than anything. In fact, I have not used anything but these since I commenced—using gold always when possible. I have been successful except in a few cases. I think the fault was mine, in not cutting under sufficient to retain the filling; think it requires more hold than gold.

DR. J. A. DIXON, New York, March 15, 1865:

I am satisfied from my own experience that it is a valuable article in the hands of judicious operators, and I do not wish to be without it.

DR. ALFRED W. DOTY, Windham Centre, N. Y., March 20, 1865:

It is but due you to say, that after near two years' experience I find your "Plastic Metal" *invaluable* for many purposes. The only objection that can be raised to it as a material for filling is, "*it looks like silver*," which, to many reasonable persons, is frequently of but little consequence. I use but little, and find that little indispensable.

DR. F. M. PERRY, Barton, Vt., March 27th, 1865:

I consider the Metal one of the best articles in the Dentist's case for the purposes for which you recommend it. I should not know how to get along without it.

DR. G. B. BROWN, Danville, Pa., March 27, 1865:

I have used your excellent Metallic Filling with great success and general satisfaction.

DR. S. CLIPPINGER, Madison, Ind., March 27, 1865:

I have been using it for some time and like it very much.

DR. A. HARTMAN, Murfreesboro, Tenn., March 27, 1865:

I have filled quite a number of teeth with it and like it very much.

DR. J. M. GARRETSON, Philadelphia, Pa., April 2, 1865:

I find your Filling invaluable in many cases—in fact, could not do without it in frail teeth.

DR. ELIAS STRONG, New Haven, Ct., April 5, 1865:

I am very much pleased with it, and find it the *very next best* filling to gold.

DR. W. H. SHADOAN, Louisville, Ky., March 31, 1865:

Some men fail with the Metal. That is owing to a want of proper skill and training. I use nothing for filling teeth but gold and "Wood's Alloy." I regard it far ahead of tin or amalgam, or anything of the sort.

DR. H. S. SARGENT, Marshalltown, Iowa, May 4, 1865:

Would say that the Plastic Metallic Filling "fills the bill."

DR. F. W. DEAN, Lacon, Ill., May 10th, 1865:

Could say much in favor of the Filling had I time. It only requires care to make an almost *No. One* filling.

DR. W. A. BRONSON, New York, June 26, 1865:

I am but recently using your Filling to any extent, but so far am quite pleased with it.

DR. SAMUEL WALTON, Barnesville, Ohio, July, 24th, 1865:

I consider it a great acquisition in my practice, as I never (scarcely) used amalgam, and with this I can build up entire crowns at a slight expense compared with gold.

DR. J. H. HOLMES, Brookfield, N. Y., Aug. 28, 1865:

I find your Filling indispensable in my practice.

DR. N. L. WILLARD, Newark, N. Y. Sept. 2d, 1865:

In reference to the Plastic Metal, I consider it *the thing*, gold always excepted. I use it constantly and with the best of success. Indeed I do not know how to "keep house without it." Any one who has skill enough to fill a tooth properly with gold or other material, can readily acquire the use of the instruments necessary to successfully use the metal.

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LETTER FROM DR. W. I. THAYER.

With the permission of the writer we give the following letter in full, as a basis for some remarks which may serve to correct similar misunderstandings. We like to hear men speak right out. It affords opportunity to remove any wrong impression as well as any just cause of complaint. The writer is certainly correct in his inference, according to his understanding of the terms; the error lay in regarding his *Receipt* for the first instalment towards a license as a license, and expecting the material at the reduced price of $2, on the strength of that—which appears to have been through the fault of the agent.

CHELSEA, MASS., Aug. 11th, 1865.

DR. WOOD: DEAR SIR: Here is some trouble and complaint for you to make right. Feb. 9th, '65, I paid two dollars to your agents for the right to use your patent; also $2.00 for an ingot. I used the same and must be frank with you enough to say, that I think your Plastic Metallic Filling is *splendid*, and a great blessing to those who cannot afford to have large cavities filled with gold, as well as a pleasure to an honest man who wishes to have something so near gold; a substitute for it, that has got some *real* value in it as a plug. Now below I am going to find fault, not with the Plastic Metallic Filling, for I could not if I wished to, but this is the trouble, viz. When I obtained my license I was postively informed I could have as many ingots of filling before Sept. 4th, 1865, as I wished, at two dollars per ingot. When I got ready for my next purchase $3.00 was demanded of me. My license before me reads: "Price of material to licensees $2 an ingot of ¼ oz. weight, to non-licensees $4 an ingot with grant to use it for trial not exceeding one year." Now to make a long story short, I consider that an inventor is entitled to the *full* benefits of his invention, whether an improvement in dentistry or mechanics, and if I choose or desire to use the improvement, I consider it just to pay for said privilege, but at the same time I wish to be dealt with in *good faith*. I want my license extended to five years, if you will do it for $8.00, deducting the $2 I have paid for the license I have bought and the $1.00 extra I have paid over for one ingot of filling. One dollar in your estimation may be *too small* to waste so much time about, but with me it is considered (the principle) as great as though it involved a thousand dollars. I will send you $5.00 for a five year license, if it will be agreeable to you, and after that runs out, if nothing prevents, I shall want to renew it.

An early reply will oblige
Yours Respectfully,
W. IRVING THAYER.

Now the writer's demand under the circumstances, to have the $1 extra paid on material, as well as the $2 Receipt, allowed towards a license, was perfectly just, and therefore, as a matter of principle, as important as though it involved thousands. We therefore quote his letter in order to invite any others under like circumstances to prefer their claims. Further, in order to avoid any dissatisfaction, we extend the time during which Receipts for yearly rights will be accepted towards licenses until the 1st of Jan., 1866.

We may say, however, that we supposed we had made our proposition so explicit as to avoid any misunderstanding. It was as follows:

"LICENSES are not issued for a less term than five years from the 4th of Sept., 1864. But for a fee of $2 a Right may be had to use the material for trial for a limited period not to exceed one year from that date. This will secure the refusal of a License, and can be applied thereon, at any time within the year; but it does not constitute the holder a LICENSEE, and he must pay the same fee and get a Receipt therefor upon the purchase of every ingot or part of an ingot, until he shall have obtained a regular license. Receipts, endorsed by the Patentee, are furnished to authorized agents for this purpose, each being good for $2 towards a license, as above."

This was reiterated in brief on the Receipts given, which were also endorsed thus:

"The within Receipt, signed by an accredited agent, will be accepted in payment towards a License for five years, if presented to the undersigned, together with the balance of the fee, before the 4th of September, 1865."

It was designed to accommodate those who wished to pay for licenses by instalments, and still to guard against abuses. If non-licensees could buy as much as they chose at the reduced rates, on the strength of one Receipt, they would have the advantage over licensees as well as agents.

Thus, a dealer who "does not keep the article," actually bought a Receipt of one agent and undertook to buy a lot for sale of another on the strength of it.

However desirous our agents may have been to adhere to the terms, it is not strange if some of their clerks misunderstood or disregarded them, producing some confusion. So also, regular licensees have occasionally been charged the full price, but this has been righted in all cases coming to our knowledge. On the whole, the proposition, although inconvenient to ourself and somewhat annoying to dealers — who betimes almost lost their usual good temper — proved what it was intended, an accommodation to the profession, and gave general satisfaction, excepting to those who wanted a pretext to grumble — and a "satisfaction" to them also, in *their way*.

EDITORIAL.

We have thought best to take a respite from the labors of publication for a time. Other duties crowd hard and we find we are getting "over worked:" we therefore think it better to confine our attention for the present to what is absolutely obligatory. When the "field is cleared" again, we hope to resume the publication and carry out its ultimate intention

We thank our friends who have cheered us with the encouragement of their good will; "may their shadows never grow less."

OHIO COLLEGE OF DENTAL SURGERY.

We are in receipt of the Twentieth Annual Announcement of this School. The following full and able corps constitute its FACULTY for the ensuing session.

JAMES TAYLOR, M.D., D.D.S., Emeritus Professor of Institutes of Dental Science.

C. W. SPALDING, M.D., D.D.S., Professor of Institutes of Dental Science.

C. KEARNS, M.D., Professor of Anatomy and Physiology.

H. R. SMITH, M.D., D.D.S., Professor of Mechanical Dentistry and Metallurgy.

GEORGE WATT, M.D., D.D.S., Professor of Dental Chemistry and Therapeutics.

J. TAFT, D.D.S., Professor of Operative Dentistry and Dental Hygiene.

L. D. WALTER, D.D.S., Demonstrator of Operative Dentistry.

J. G. VAN MARTER, D.D.S., Demonstrator of Mechanical Dentistry.

WILLIAM TAFT, D.D.S., Demonstrator of Anatomy.

Dr. J. Taft, 172 Race street, Cincinnati, is the Dean of the College, to whom application should be made for information.

We think it would be a good idea if dental students in the Eastern and Middle States, would make it a point to take at least one term of lectures in this Institution. It would afford some knowledge of the truly "Great West" of which those who have never visited it can have but a faint conception:—it is not improbable that the difference in the price of good accomodations of board, &c., would pay the expenses of the trip. So also we think it would be well for Western students to take a course in an Eastern school. Such reciprocity could not fail to secure mutual advantage and good feeling.

The above school commences its current session on the first Monday of November, and continues to the 20th of February succeeding. It has labored assiduously and effectually for the profession during many years, and has nobly earned a cordial and generous support.

PHILADELPHIA DENTAL COLLEGE.

The Third Annual Announcement of this young and enterprising School has also been received. It says:

"Entering upon existence at a period apparently the most unpropitious which could have been selected, the Institution has met with all the encouragement and support during its previons sessions that its founders had anticipated; and, with a firm and undiminished reliance on the future, ... the Faculty issue this the third announcement of a desire and intention to do everything in their power which shall contribute toward the advancement of dental education and the elevation of the professional standard in its various directions."

THE NEW YORK STATE DENTAL DELEGATION.

This Society, agreable to announcement, held its First Annual Meeting, in this city, 20th to 23d of July. Not having the minutes of the meeting before us, we are unable to give even a synopsis of the proceedings, but must say that a general good spirit prevailed and the whole passed off with harmony and enthusiasm. Indeed, we do not remember to have any where attended a more interesting and profitable meeting. In the discussion of the various topics, the members were called out in alphabetical order, which had the effect to enlist a very general participation. Several speakers, by request, enlarged upon special points; and two or three very elaborate and philosophical dissertations were elicited, which received profound audience, and great applause. We think the Society destined

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[illegible] great good. It has made a good start—numbering more [illegible] than perhaps any other society commenced with. At its pre[illegible] meeting about 25 members signed the constitution; at the first [illegible] meeting some thirty were present, including the new members—the total number already belonging to the Delegation being above forty. The old American Dental Society, which finally merged into the American Dental Convention, was organized, we believe, by about a dozen dentists, while the American Dental Association, which is now little inferior in usefulness and influence to the American Dental Convention, was organized (July, 1860) and entered upon its work with "*twenty-three delegates only*, of the various Dental Societies and Colleges then existing."

The New York State Dental Delegation is not restricted to this State alone for membership. It has already some members from the New England States—and it might be given a still wider, if not a national scope. It was organized at a time when the mind of the dental profession, as well as the whole public, was preoccupied with the great events which agitated the country, and when, in view of the many dental societies already existing, the project of a "*State Dental Association*" was regarded by many as Utopian.

The next annual meeting of the Delegation is to be held at the Cooper Institute, in the City of New York, on the first Thursday preceding the last Tuesday in July, at 10 A. M. The succeeding meeting will probably be held in the western part of the State, should there be a large enough representation from that section to invite it there.

THE MISSISSIPPI VALLEY DENTAL ASSOCIATION, AND MEDALS FOR INVENTIONS, &c.

At the last session of this Society, and in response to a previous offer of a medal for the best invention, improvement or discovery, the following articles were presented for competition, to wit: Automatic plugger, by J. C. Dean, Chicago, Ill.; ditto, by J. W. Baxter, Warsaw, Ky.; ditto, by G. Jackson, Winona, Min.; Buckeye Vulcanizer, by C. H. James, Cincinnati, O.; Foil Crimper and Coffer-dam, by J. A. McClelland, Louisville, Ky; Annealing Lamp, by A. T. Metcalf, Kalamazoo, Mich. While commending the ingenuity and usefulness of all, yet for practical utility in supplying the wants of the profession, the committee adjudged the award should be made to C. H. James for his improvement in Vulcanizer. This, after discussion respecting the justness of awards being made to patented articles, was adopted.

It was then, on motion of Dr. Shadoan, adopted that the Association award a silver medal of value of $20 for the best invention, discovery or improvement, presented at the next annual meeting.

Dr. Cheesebrough deposited $10 for a medal for the second best invention, etc., and Dr. H. A. Smith, $5 for the third best.

It would appear that the offer of these awards had been made without restriction. The next morning, on motion being made to "award a medal, value, $25, for the best essay on alveolar abscess," it was amended "that prize essays be copyrighted, the *copyright to be the property of the Association.*" Whereupon the mover offered the following:

"*Resolved*, That the Association award no medal or reward to patented articles of any description."

As copyrighting and patenting proceed upon the same principle and look to the same object, it is a wonder the resolution had not required, in harmony with the preceding, that the *articles be patented*, *and the patents* "*to be the property of the Association.*"

After an exciting discussion the *resolution was finally adopted.*

It will be seen from this how easy it is to render abortive the best intention of any society in these means of promoting progress. It is very easy to press through almost any resolution or amendment, on favorable occasions; it is easy, also, thus to destroy the usefulness of a society, or even to break it up altogether. Shall the encouragement of discovery and improvement be left to such uncertain expedients? It is, surely, not to be expected that anything of much value will be presented for competition before the Association under the conditions imposed; it would be "selling one's birthright for a mess of pottage." The medals proposed under the circumstances become practically awards for the more worthless productions rather than the best, and might be construed as credentials of demerit instead of merit.

We hope the Association will "try again," for it started out with fair success and ought not to *stay* "tripped up."

THE CIRCULAR AND EXAMINER.

The present volume has been sent gratuitously only to our regular Licensees, or those obtaining licenses (for not less than five years) by 4th of Sept., 1865; but in no other case except upon receipt of the subscription price. As to the objection to *paying* for it on the ground of its serving as an advertising medium for what we offered for sale, we reply, that its circulation has been and was expected to be confined almost exclusively to those who had already purchased and are using what we have to offer, and that we had no other articles or wares to advertise for their patronage. Hence it did not answer the nature or ends of an advertisement carrier.

But we believed the information it might be able to elicit and diffuse in regard to material, instruments, the best modes of manipulating, and collateral questions, would be of interest and profit to all wishing to be fully posted. We would remind those who conceive they know all, or can succeed with every thing without any outside suggestion, of the attention required in order to full knowledge and proficiency in the use of gold; and of the failures with rubber work by the supercillious, working in darkness, some of whom, finding they did not succeed as well as others more earnest, and scorning to stand "second best" had no other retreat but to abandon and condemn the process altogether.

It was intended that the present volume should embody the essential points relating to our patents, practical, theoretical and historical, for future reference; when the journal is resumed it must be held free from whatever would afford any color for invidious construction.

Those who may have failed to secure their regular complement will please notify us at once, as after the 1st of January whatever remains on hand will be bound and put at $1.50 per volume. The odd Nos. will be sent as specimens to applicants as long as they last.

PACKING RUBBER.

We understand that Dr. Gam'l Jackson, of Winona, Min., is about to publish a treatise on Rubber work, which will contain a full description of his method of packing rubber so as to *ensure* perfect results.

BUSINESS NOTICES.

It affords me much pleasure to express, on this occasion, my obligation for the liberality and courtesy met with in my business relations with the profession. With some exceptions, mostly from those not legitimately within its pale and their leaders, the general good will manifested has been gratifying beyond expectation.

The time has not long passed by when dentists confronted each other in ridiculous antagonism: when they would scarcely deign mutual recognition, much less deal with each other. Hence it was predicted that I could not succeed except by putting my bussines in the hands of outside parties, &c. But this spirit has yielded to better influences, notwithstanding the efforts still made to foster it.

When we consider the general hostiltity to new things and processes which involve training or trouble in the using, and to this add the special prejudices in regard to this New Material, the *unusual* mode of manipulation required in its use, the apprehension excited by the *idea* of *heat*, the necessity for special instruments, together with the formidable counter influence early started and persistently kept up; the professional prejudice, long and assiduously inculcated, against patents, the more reasonable objection to paying a license fee instead of an equivalant advance in price of material, the restrictions on sales, the general unwillingness of dealers to take the trouble and responsibility thus entailed, and the consequent attempts to run the material out of market, with other obstructions to its introduction, the most moderate measure of success might at first view have been regarded hopeless. And yet, but for all these obstacles and restrictions it would have been difficult for me to have properly meet the current demands.

The purchase of licenses has been entirely voluntary, without a single case of litigation. It was believed there would not be a dozen licensees, until after suit should be brought for infringement. Yet without any present necessity or requirement, we have already nearly one third of the number needed to meet the proposition made in our last issue with reference to an abatement of the license fee at the expiration of the first five years.

Even those who either themselves bitterly opposed the license, or feared the reproaches of others who did, have been perfectly willing to pay an equivalent in price on material. For this reason the matter will continue to be left optional another year, unless it should prove a serious inconvenience, in which case due notice will be given.

At any rate, I shall always be ready, as I have been, to accomodate the profession as far as possible, and for past favors return them most cordial thanks.

PRICE OF MATERIAL.

As specie remains one-third higher than paper currency, the Filling continues at $3 an ingot, agreeable to the standard heretofore adopted (see April No., p. 62).

It will be seen that it has been little influenced, even nominally, by the enormous rise and great fluctuations in gold and every thing else, since its first introduction, which was at $2 an ingot, in specie, or its equivalent. The License-fee

has remained at the same figure throughout. The Instruments were advanced from $3.75 to $4.50 for a set of 12, best style, plain steel handles.

For a time while gold ranged from 250 to 275 the Filling was still held at $2 (though a corresponding advance would have put it at from $5 to $5.50), relying upon receipts from licenses to make up the deficiency. Finding by the loss entailed that specie must be taken as the standard for material, the price was raised on non-licensees to $4 an ingot, but allowing one-half to apply towards license, still selling to licensees at $2, gold being during the time about 200 or upwards. When gold declined to 150 the price was put down to $3 (equal to $2 in specie); and, to avoid further nominal change, $3 (in paper currency) was fixed upon as the permanent price — assuming, as was then said, that the relation between paper currency and specie would not soon vary far from this, and stating that, "if it should, the ingots must be made to correspond in weight, the figure remaining the same." But it was still put to licensees at a reduction of ⅓ or at $2, while allowing those who held free grants under the former patent, not only the free use of the improvement, but to become regular licensees under the new patent upon the simplest and easiest terms it was possible to devise; which was cordially accepted by nearly all who had acquired success in the use of the material; some, however, who neglected it took great offence upon having to pay $3 an ingot, although we were never under obligation to continue selling at $2 in depreciated currency, except to licensees under the new patent to whom it was promised in consideration of *bona fide* payment. The price has at no time been, even to non-licensees, above the original rate of $2 in specie or its equivalent, except during trifling and temporary fluctuations. I mention this on account of some fault-finding about "changes made."

TROY WEIGHT.

The Filling is now sold by *Troy Weight*, instead of Avoirdupois, the ingots weighing two-thirds of an ounce Troy, which is equal to three-fourths of an ounce Avoirdupois less the postage; being now mailed free of postage. This is in accordance with the intention expressed in our April No., for reasons there stated. Besides, as most dentists use Troy weight, and an ounce of this is heavier than the other, it is liable to create a wrong impression with any not knowing the difference. However, to avoid dissatisfaction until this "change" is understood, the ingots are made a little over weight, and will average three-fourths ounce Avoirdupois, as before. The actual difference between two-thirds ounce Troy and three-fourths ounce Avoirdupois is eight grains.

An ounce Troy weight, as also apothecary's weight, contains 480 grains, while an ounce Avoirdupois contains 437½ grains, the grains being the same in all. On the other hand, a pound Avoirdupois contains 7,000 grains, while a pound of the others contains but 5,760 grains. The Troy and Apothecary's weights correspond, except in a different division of the ounce.

☞ As a great majority of dentists have never used the Filling, and want a chance to try it before purchasing licenses, agents have uniformly advised an extension of time for this purpose; which has been done, as recently advertised.

LICENSEES UNDER THE NEW PATENT.

LICENSEES are entitled to a reduction of one third on material ordered from this office for their own use. This, however, is not *obligatory* upon dealers, who are left to their own discretion in the premises, but it is believed most of them will conform to it although it may subject them to some extra trouble. If not, licensees have only to take receipts for the purchase and send them to me, enclosing return postage, when they will receive by mail material equivalent to the excess paid,—provided of course the purchase be made of authorized parties.

Licensees are restricted from selling material to others—as it would interfere with agents—and by so doing they forfeit their licenses. But those who agree to give instruction in the use of the Filling may obtain special authority to act as agents upon the usual conditions.

Dr. Albee, L. W., Charlestown, N. H.
“ Alden, E. P., Hoosick Falls, N. Y.
“ Allender, Wm., New London, Ct.
“ Atkinson, Wm, H., New York City.
“ Austin, John C., Albany, N. Y.
“ Avery, Otis, Honesdale, Pa.

“ Bancroft, R. S., Romeo, Mich.
“ Barbor, J. G., Le Roy, N. Y.
“ Bardeen, A V., Hamilton, N. Y.
“ Batchelor, W., Milwaukee, Wis.
“ Beals, J., Greenfield, Mass.
“ Bidwell, Julius A., Sturgis, Mich.
“ Bonwill, Wm. G. A., Dover, Del.
“ Bowman, G. A., Canton, N. Y.
“ Bronson, W. A., New York City.
“ Brown, G. B., Danville, Pa.
“ Brown, James, Galena, Ill.
“ Brundage, N. L., Montrose, Pa.

“ Chase, J., Boston, Mass.
“ Clippinger, S., Madison, Ind.
“ Cook, J. N. Russiaville, Ind.
“ Cooke, A. A.&. G. L., Milford, Mass.
“ Cunningham & Budd, Attica, Ind.
“ Crane, J. C., Cohoes, N. Y.

“ Davenport, J. N., Northampton, Ms.
“ Davis, C. G., New Bedford, Mass.
“ Dean, James C., Chicago, Ill.
“ Dean, F. W., Lacon, Ill.
“ Dewey, D. J., Washington, Iowa.
“ Dixon, J. A., New York City.
“ Dodge, Neh., New York City.
“ Doty, A. W., Windham Centre, N. Y.
“ Draper, Jas. R., Troy, N. Y.

Dr. Dunlap, J. L., Chillicothe, Ohio.
“ Dwyer, J. H., Greenfield, Ohio.

“ Edington, W. F., Geneva, N. Y.

“ Fitch, C. P., New York City.
“ Foster, E. W., Milwaukee, Wis.,
“ Fox, L. T., Cobleskill, N. Y.
“ Freeman, S. A., Buffalo, N. Y.

“ Garretson, J. M., Philadelphia, Pa.
“ Gifford, J. C., Westfield, N. Y.
“ Gildea, B. M., Louisville, Ky.
“ Green, Jesse C., West Chester, Pa.
“ Griffin, E., Albany, N. Y.

“ Hale, N. G., Windsor, Vt.
“ Hartman, A., Murfreesboro, Tenn.
“ Haskell, T. J., Fulton, N. Y.
“ Haynes, Edwin, Wilmington, Vt.
“ Hemenway, J., Athol Depot, Mass.
“ Higgins, T. M., Havana, Ill.
“ Holden, Daniel, Ware, Mass.
“ Holmes, J. H., Brookfield, N. Y.
“ Hosier, Wm. L., Chargrin Falls, O.
“ Hunt, P. G. C., Indianapolis, Ind.
“ Hurt, M. V., Sedalia, Mo.

“ Jackson, Gam'l., Winona, Minn.
“ Jackson, J. J., Coxsackie, N. Y.
“ Jarvis, O. A., New York City.

“ Klock, Wm. H., Little Falls, N. Y.

“ Leach, L. R., White's Corners, N. Y.
“ Lester, Wm., South Hadley, Mass.
“ Lewis, Edward, Middleton, Del.

Dr. Lewis, J. M., Greenfield, Ohio,
“ Lyman, A. E., Newton Falls, Ohio.

“ Martin, C., Frederick City, Md.
“ Mc Calla, John, Lancaster, Pa.
“ McCaw, P., Pinckneyville, Ill.
“ Mc Clelland, J. A., Louisville, Ky.
“ Mc Coy, M., Boonville, Mo.
“ Mc Donnels, G. B., Girard, Pa.
“ Melotte, Geo. W., Pottsdam, N.Y.
“ Metcalf, John T., New Haven, Ct.
“ Mills, Geo. A., Brooklyn, N. Y.
“ Moffatt, Geo. T., Boston, Mass.
“ Morrison, E. M., Noblesville, Ind.
“ Morse, G. S., Columbia, Mo.

“ Newell, P., Mansfield, Pa.
“ Nichols, G. W., Davenport, Iowa.
“ Northrop, A. L., New York City.

“ Ohio College of Dental Surgery.
“ Overholser, D. L., Lockport, Ill.

“ Palmer, Corydon, Warren, Ohio.
“ Pease, Wm. A., Dayton, Ohio.
“ Pierce, C. N., Philadelphia, Pa.
“ Pennsylvania Col. Dental Surgery.
“ Perry, F. M., Barton, Vt.
“ Porn, R. J., Lexington, Ky.
“ Priest, A. N., Utica, N. Y.

“ Randall& Johnson, Farmington, Me
“ Reading, Lewis, E., Trenton, N. J..
“ Reynolds, S., Middle Granville, N.Y.
“ Rice, L. H., Johnstown, N. Y.
“ Riggs, J. D., New Haven, Ct.
“ Robinson, H. A., Foxcroft, Me.
“ Robinson, S. M., Watertown, N. Y.
“ Rossou, B. F., Troy, Ohio.
“ Roy, Enos G., New York City.

“ Sayles, A. P., Lyons, Iowa.
“ Scott, H. R., Franklin, N. Y.
“ Scott, J. O., Champlain, N. Y.
“ Scranton, J. N., Bennington, Vt.
“ Shadoan, W. H., Louisville, Ky.
“ Shatto, I. N., New Bloomfield, Pa.

Dr. Sheffield, W. W., New London, Ct.
“ Sheldon, John, Hudson, N. Y.
“ Shoemaker, W. B., Newville, Pa.
“ Sherwood, Valentine, Rondout, N.Y.
“ Sloan, P., Canajoharie, N. Y.
“ Smith, James D., Dryden, N. Y.
“ Smith, Jos. H., New Haven, Ct,
“ Snow, Geo. B., Buffalo, N. Y.
“ Stephens, Jas., New York City
“ Stone, A. A., Sinclearville, N. Y.
“ Straw, L. S., Newburgh, N. Y.
“ Strong, Elias, New Haven, Ct.
“ Suesserott & Platt, Chambersburg.
“ Sutton, Robert B., Gilford, Ct.
“ Swartwout, E. L., Utica, N. Y.

“ Taft, J., Cincinnati, Ohio.
“ Tees, Ambler, Philadelphia, Pa.
“ Thayer, W. J., Chelsea, Mass.
“ Thompson, S. K., Poultney, Vt.
“ Truman, James, Philadelphia, Pa.

“ Vandervort, R.& Son, Pittsburg, Pa.
“ Van Dyck, C. W., Lebanon, Ohio.
“ Vedder, J. H., Schenectady, N. Y.

“ Walton, C., Philadelphia, Pa.
“ Walton, Samuel, Barnesville, Ohio.
“ Waters, Geo. H. Waterbury, Ct.
“ Watt, Geo., Xenia, Ohio.
“ Welch, S. P., Lansingburg, N. Y.
“ Wells, A. B., Holland Patent, N. Y.
“ Wheeler, Lewis, C., Troy, N. Y.
“ Whitmer, S. H., Landishburg, Pa.
“ Whitney, G.R., N. Bridgwater, Mss.
“ Willard, N. L., Newark, N. Y.
“ Williams, J. B., Monongahela, Pa.
“ Williams, Jacob L., Boston, Mass.
“ Williams &Gill, West Liberty, Ohio.
“ Winne, W. F., Albany, N. Y.
“ Woolworth, J., New Haven, Ct.
“ Wood, J. S., Albany, N. Y.
and Lansing, Mich.

“ Woodward, C. N., Ripley, Ohio.
“ Young, H. H., Troy, N. Y.

Messrs. John D. Chevalier & Sons, of New York City, and A. M. Leslie & Company, of St. Louis, Mo., have secured the right to manufacture and sell the patented Instruments. The Instruments manufactured by these establishments will be stamped with the proper patent mark. The profession are cautioned against purchasing any not so stamped.

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DR. B. WOOD'S

PLASTIC METALLIC FILLING.

EMBRACED IN LETTERS PATENT GRANTED MARCH 20, 1860

PATENT FOR THE IMPROVEMENT ALLOWED.

Many inquiries are addressed to me in reference to the nature and advantages of the Plastic Metallic Filling, its origin, the manner of using it, the opinion of dental practitioners in regard to it, &c., &c. To economise time I have thought best to issue this Circular, in which I have endeavored to cover, as concisely as possible, the essential points, proposing hereafter to treat the subject in its various connections and bearings more at full. The general qualities and advantages of the material may be briefly cited.

ITS QUALITIES AND ADVANTAGES.

The Plastic Metallic Filling is designed for making perfect and durable plugs, as a substitute for gold where economy is an object, and for inferior material where the teeth can be saved, and not for temporarily stopping up those which are diseased and worthless. It is therefore assumed that the dental cavity be previously well prepared, and the entire operation be skilfully executed with a view to saving the tooth permanently. There is no preservative quality in any material employed, considered in itself, whatever may have been imagined or claimed to the contrary, its value depending upon its successful manipulation, and its susceptibility of forming a secure, impermeable and durable filling. It is *good work* that saves the teeth, and, other things being equal, that with which the best work can be done is the best material for the purpose.

Assuming, then, that it be skilfully used, the Plastic Metallic Filling possesses advantages above every other material but gold for filling teeth, while it can be successfully employed in many cases where gold cannot. It can be introduced with facility and accurately secured. It moulds closely to the walls of the cavity without recession or shrinkage, forming a perfect plug, solid throughout, that effectually excludes air and moisture. The proportions are adjusted so that it shall expand very slightly rather than contract, upon solidification, sufficient to make a close fit, but not enough to injure the frailest shell of a tooth. It can be built out from broken and defective teeth, so as to restore their original form and usefulness. In this way entire crowns have been restored for the support of clasps as well as for use in mastication. In such cases, should the cusps or points become abraded by continued wear, as any material may, they can be readily built out again, whereas when gold foil or sponge gold chips out or wears off under like circumstances, it is difficult, if not impractical of renewal.

The metal is of close, compact texture, like solid tin or gold, and cannot absorb the buccal secretions, as do the earthy and metallic pastes, and also gold and tin foils when not well condensed; it therefore does not, like these become tainted and offensive, but remains absolutely free from any interstitial impurity.

At a temperature but little higher than that of ordinary hot drinks, and yet not low enough to be affected by them, it is rendered soft and plastic, suitable for application, while at a heat liable to do harm, it becomes too fluid to work; by this it is self-guaged and within control,—being its own thermoscope.. Operations with it are generally more expeditiously performed, and attended with less discomfort than with gold; in cases of highly sensitive dentine the pain is far less than that produced by removing the decay and but momentary; but in ordinary cases there is no pain at all experienced in introducing it. As it solidifies upon introduction, it is of immediate service for mastication, and not liable like amalgams and other cements, to wear off or to crumble out.

It contains no mercury, nor is it allied in composition or qualities to amalgams,* and it is free from their objections. Neither can it blacken the tooth-bone as these preparations are necessarily liable to do. The amalgam employed for stopping teeth, (commonly called "cement," or "silver cement,") is composed of an alloy of silver with one or two parts tin, or one-tenth part copper (coin,) generally both, for pure silver does not harden well, and therefore is not used, which alloy is reduced to fillings, and mixed up with mercury (quicksilver,) into a paste for introduction into the tooth cavities, where it hardens after a while. But mercury is a fluid capable of permeating any tissue; it is also volatile and slowly vaporizes at any temperature; and as it has but a feeble affinity for the other metals in the compound, the particles of which it serves to agglutinate, it gradually elminates itself in part, permeating the tubular structure of the tooth which it blackens; for its particles finely comminuted are dark, and this is intensified if oxidated or combined with sulphur. This also leaves the plug porous to imbibe impurities.

The constituents of the Plastic Metallic Filling are, on the contrary, all permanently solid. The metal can undergo no change or loss of substance, except what might occur from the surface. It therefore does not, nor indeed can it affect the tooth structure; nor discolor the contiguous portions of the dentine when the plug is perfect, so as to preclude impurities working underneath. If however the work be defective and decay go on it may induce oxidation. The decayed matter of a tooth is the most corrosive of agents upon metals. It will oxidate any of the base metals. Even gold itself is in some instances eroded by it, as evinced by the purple stain communicated to the dentine where decay goes on in contiguity with gold plugs; and it is not to be presumed that a composition of the baser metals, as tin, cadmium and bismuth, would remain unaffected when any one of them separately would not; for there is no process of *compounding* by which metals can be transmuted into gold, as the alchemists of old idly imagined. When oxidation thus takes place, the decay, of course, will be stained according to the color of the oxide or salt which acts as the pigment, from gold, purple, " silver cement," inky black, the Plastic Metallic Filling, light orange, etc.

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* The word *Amalgam* denotes, a *combination of Mercury* with another metal.

But assuming the work to be thorough, as it should be whatever material be employed, and without which nothing will be effective for the permanent preservation of teeth, the Filling retains its color, and since this is silver-white, it does not darken the tooth, even when so thin as to show through; hence it is suitable for front teeth as well as back; whereas tin in such cases reveals a darker shade, amalgam shows through black, and gold itself is less objectionable only so far as its yellow hue corresponds more nearly to the color of the tooth.

As it requires no force for its introduction it can be safely used in frail teeth, and the teeth of children &c., where pressure would do injury.

It is the best non-conductor of any metallic substance employed, the advantage of which is obvious especially in teeth, sensitive to transitions of heat and cold.

In hardness it is nearly equal to pure gold cast solid, and will out wear gold plugs imperfectly consolidated, as well as tin plugs however perfect.

It is inferior to gold in being more liable to tarnish in certain conditions of the mouth, but is found superior in this respect to other metals used for the purpose. It is readily acted upon by nitro-muriatic acid, which dissolves gold and platinum, and also by nitric acid which dissolves silver and all the inferior metals, but resists other acids and agencies to which it is subjected in the mouth, as well or better than silver. This appears due to the large preponderance of bismuth in the compound, a metal which deserves a place among the "precious metals" equal with silver, and but for its brittleness and softness when uncompounded, would rank above it, and which (freed of course from the contaminations incident to it in the crude state, as obtained in commerce) could it be worked in the form of foil like gold, would in the main essentials doubtless prove more suitable for the purpose than even the latter metal.

The Plastic Metallic Filling withstands any acid the tooth structure can, and will out last the teeth under any agency by which they are both liable to be affected. Placing a tooth plugged with it in diluted hydrochloric acid, (the most destructive acid to which the natural teeth are liable to be subjected, and which under certain conditions is present in the mouth in a very diluted form,) upon examination after three weeks, the tooth bone was softened like cartilage, and the enamel reduced to an incoherent pulpy powder, while the filling was not eroded away in the least, and although it was darkened on the surface by incipient oxidation, this was a mere pellicle, a light scratch revealing the metal perfectly intact and bright underneath. Sulphuric acid exhibited a similar result.

Of the various substitutes for gold resorted to, tin has heretofore been considered the best, because generally found to resist the morbid secretions eliminated in the mouth better than the others; and it would have been more generally used instead of amalgam, oxichloride of zinc, or "bone filling," and other inferior stopping, but that its introduction involved more skill and trouble. But tested (by a disinterested observer) in comparison with the Plastic Metallic Filling, in mouths where the secretions were peculiar corrosive on oxidable metals, at the end of a year the tin was found black and soft, from oxidation, to some depth, while the Plastic Metallic Filling exhibited only a superficial tarnish. Even where the Filling is subjected to galvanic action in the mouth, in contact with gold, as in supporting a clasp, the oxidation is confined to the surface, forming a thin film, which appears to effectually prevent further action. Under ordinary conditions, however, it remains bright, or exhibits only a dull white opacity, hardly amounting to a change of color, in striking contrast to the dark, dingy hue of poorly condensed gold plugs that have become soiled by the imbibition of impurities, and which had far better be replaced with this Filling, for appearance sake as well as utility.

In short, dentists, once skilled in the use of this material, find it better for the effectual preservation of teeth than any other yet employed, except gold thoroughly impacted at every point, and far superior to indifferent gold fillings.

The metal is also useful for engrafting artificial crowns and partial crowns, securing ordinary pivot teeth, and for repairing plate teeth, particularly on rubber base, and may be used itself as a base for artificial sets, as well as for various purposes in the arts—silvering glass, making medallions, taking impressions of delicate forms and objects; for thermoscopic and safety guages, hermetical sealing, affixing points and ferrules, etc., etc. For purposes of the arts, however, where economy is the great desideratum, a different and much cheaper formula is prepared, and as therepeutical considerations do not here interpose, the ingredients are used as obtained in commerce, without being subjected to preliminary processes of refining and edulcoration, thereby obviating the most important item in the expense. But in this case, to prevent imposition upon the profession by unprincipled dealers, and upon the community by dishonestly penurious dentists, the metal which is prepared for the arts is stamped and sold in thicker bars, which cannot be reduced without obliterating the impress, to counterfeit which is a criminal offence, with a penalty which few will hazard. Although the best security against imposition is for the community to avoid all professing to use the Plastic Metallic Filling, or "something as good," but who cannot show themselves entitled to use it, and then no imposition will be attempted. With this view the license system was adopted, and all licensees are duly accredited.

The qualities above mentioned render this material an object of no slight interest to the dental profession, and to these of the community who have teeth which they wish preserved in the most effectual as well as economical manner. And since some have attempted to detract from it by representing it as the old fusible metal of the books, or some mercurial compound long since discarded by the profession, and as few take the trouble of referring to the sources of information, it may not be out of place to quote from some of the first announcements in regard to the original discovery, which was the result of a systematic investigation during my residence in Nashville, Tenn.; although the improvement which gives it value for dental purposes was not produced until two years after the original patent, nor brought to its present state of perfection until since my return to my native city.

NOTICES OF THE ORIGINAL DISCOVERY.

Fusible Alloys—Scientific Research.

It has been announced that our fellow-citizen, Dr. B. Wood, Dentist, was recently granted a patent for a Metallic Composition, of practical value as a fusible alloy. In compliance with a request from the editor of the *U. S. Mining Journal*, the inventor wrote for that paper an article upon the subject, which we copy below, and which will be found of scientific interest and value. Dr. Wood is a laborious student, and a careful and discriminating experimenter; and we trust that he may find leisure in the future to give more liberally to the public of the results of his investigations.

Nashville Banner, *June* 2, 1860.

Dr. B. Wood of Nashville, has discovered a valuable alloy which fuses at 150° Fahr —a lower temperature than the fusing point of any metal previously known.

New York World, (*Scientific American*, *Nov*. 17, 1860.)

The best known alloy fusible at a very low heat. * * * * It is superior to the cheap quicksilver amalgam for filling teeth.

Scientific American, *Aug*. 24, 1861.

New "Fusible Metal."

Dr. B. Wood of Nashville, Tenn., has secured a patent (Weekly Scientific Artizan, Cincinnati, May 5, 1860,) for an alloy * * * which fuses at a temperature between 150° and 160° F. The constituents of this *fusible* metal may be varied according to other desired qualities of the alloy. * * * * We have had time only to repeat a few of Dr. Wood's interesting experiments in regard to the remarkable influence which cadmium exercises in lowering the fusible point of various alloys. The alloy—melts at a temperature varying not far from 70 C., (158 F.) It may appropriately be called "*Wood's fusible metal.*"—*Eds. Silliman's American Journal of Science and Arts, Sept.* 1860.

Wood's Fusible Metal.

From the London Chemical News, No. 68.

Lipowtz has made some experiments on the Cadmium-alloy described by Dr. Wood. (See *Chemical News*, vol. ii, p. 257.) It is permanently silver-white, and has a brilliant metallic lustre; it is not so brittle or hard but that it may be obtained in thin leaves or flexible plates; it has a fine grained fracture, and may be filed without stopping up the file. In dry air it keeps its polish. It expands in cooling. Its specific gravity is from 9.4 to 9.41. It softens between 131° and 140° Fahr., and near 140° becomes perfectly fluid. No change in the condition of the metallic mass was observed on remelting after rapidly cooling the alloy. The above properties show that the alloy may be applied to some useful purposes. It may supersede all the quicksilver alloys for stopping teeth. It may be used as a solder whenever the metals soldered are not likely to be exposed to heat. Tin, lead, and Britannia metal may be soldered together under water above 160° Fahr. Zinc, iron, copper and brass may also be soldered with the greatest ease under water, to which a little hydrochloric acid has been previously added. The alloy is so easily fusible that it may be melted on a piece of paper over a spirit lamp. In the preparation of the alloy, the author recommends the use of the purest bismuth.—*Dingler's Polytech. Journal*, Bd. clviii. s. 271 and 376; *Journal of the Franklin Institute, June*, 1861.

As the fusibility of the slightly varied formulas examined by the two authors last quoted is identically the same, the difference in the figures given may be due to different modes of measurement, or possibly a print-error in the last instance; although the discrepancy is not greater than in results given by different authorities in respect to almost every other metal. Carefully repeated tests indicate 150 deg. Fahr. as the true melting point, or 62 deg. below the temperature of boiling water, and some 50 or 60 degrees below the melting point of the old fusible alloy of lead, tin, and bismuth, described in the books as Newton's or Rose's alloy, and employed to some extent for filling teeth, under the name of Darcet's metal.

But this new fusible metal, which differs essentially from the old in composition and qualities, in melting at a temperature low enough, and possessing other advantages over it for dental purposes, was still objectionable, and accordingly I did not propose it for this use until these objections were overcome by the production of an entirely new form of the metal, differing in certain essentials as widely from the first as that from the "fusible alloy" of the books.

THE IMPROVEMENT.

The general qualities of the improved and plastic form of the metal have been stated. It differs from the original in being harder and more durable, in having a better color, in being free from injurious expansion upon solidification, and in possessing other requirements of tooth filling which the other did not. It resembles it in fusibility, but requires a little higher heat to work it than that at which the other melts, varying at the lowest from 152 to 156 deg.; but differs in being soft and *plastic*, instead of fluid, and in remaining plastic several degrees higher. This allows time for introduction into a dental cavity, and enables it to be moulded or compressed therein, and to retain its place without recession. The proportions are adjusted so as to prevent contraction as well as undue expansion on cooling in a tooth; while the component metals, as a preliminary step, are carefully purified from the pernicious contaminations incident to them in the crude state as obtained in commerce—the importance of which will be apparent.

As it has been attempted to identify this metal with the old fusible alloy before referred to, and which is the only metal which can be used in its stead without infringement upon my patents, it may be proper here tc contrast the qualities of the two. The difference between them is more marked than that between some of the simple metals. It is certainly as great as that between lead and tin in almost every characteristic, and in some particulars greater. But a brief notice of the objections to the old alloy, as a material for filling teeth, will suffice. These relate

First—To its softness, being inadequate to resist wear. The Plastic Metallic Filling is a great deal harder and more durable. Take triangular bars of each, and compress the edges together under a vice, and the Filling will cut the old alloy through clean, with scarcely an indentation upon itself.

Second—Its purplish gray metallic color, giving a dark hue to the tooth where liable to show through. (The Plastic Metallic Filling is of a silver-white.)

Third—The lowest heat required for its fusion being 200 deg. to 212 deg., is inconveniently high for general use in filling teeth, and in some cases liable to do mischief; and as it is *fluid* as soon as melted, and but fluid at a much higher heat, there is no criterion of safety in using it, while the Plastic Metallic Filling becomes too fluid for manipulation some thirty degrees below this minimum temperature, and must be allowed to cool to this to be of the proper consistency for application.

Fourth—It passes so quickly from a fluid to a solid state and *vice versa*, that it is difficult and often impracticable of application; for the tendency to assume while fluid, a globular form, causes it, when fused into the cavity of a tooth, to recede from the walls and margins of the cavity, thereby leaving imperfections; and at the point of congelation it becomes too quickly solid and unimpressible to allow of working it down to its place. Hence it is inapplicable in the majority of cases, being confined chiefly to crown cavities of lower teeth; it cannot be well conveyed upon an instrument, but if tilted drops off. The Plastic Metallic Filling clings to the point or blade like semi-fluid wax, and can be thus carried and accurately moulded to any spot.

Fifth—It expands upon solidification to an extent which is liable to crack a frail tooth and otherwise do injury, whereas in the Plastic Metallic Filling this difficulty is overcome.

The third objection in respect to the high heat required, is removed by mixing with the alloy a certain quantity of mercury, which, being itself fluid, lowers the fusing point of the mixture in proportion to the quantity used, but when enough is added to be sufficiently fusible for the purpose, or as fusible as the Plastic Metallic Filling, it renders the compound very fragile and soft, so that the unamalgamated alloy will cut it in two, and also more susceptible to oxidation, and otherwise unfit for use; while the mercury having little chemical affinity for any of the other constituents, gradually eliminates itself, permeating the dentinal tubuli, and discoloring the tooth, the same as in the case of the amalgam pastes above referred to. Yet it is this mercurial compound which is generally resorted to. It is this which dentists mean when saying they "have used fusible metal." It is this, compounded with the crude materials bought at the shops with all their pernicious contaminations, that impostors are selling throughout the country at from fifty cents to two dollars an ounce, according to customers, and representing it as "Wood's Filling," or substantially the same,—sometimes pretending to have "*stolen the receipt*" from my books.* Some are content with enough of the Plastic Metallic Filling to be able to show its patent stamp, under color of which they can palm off a cheaper article on their patients. Am I not right in yielding to the demands of the community in the matter of requiring licenses, that all may know who are legitmately using the patent and who not?

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*It is this also which, as I perceive from the last No. of the "Dental Cosmos," (April, 1864,) that Dr. J. D. White, the editor of that publication, seeks to identify with the Plastic Metallic Filling. *Of* the amalgam compound as formerly prepared by himself by a "series of experiments, aided by an intelligent physician," (all which might have been spared had he consulted the books,) styling it "*White's* Terra Metallic Compound," but which proved a failure, (as he might have known in advance from the same sources,) he says: "This metallic compound was used by heat, precisely as Dr. Wood's, and looked as much like it as possible. It was no better than amalgam, except that it contained less mercury." He then proceeds to confound the two, and, as by anticipation, to prejudice or paralize testimony.

If Dr. J. D. White had analyzed the metal which he would condemn by implication; if he had *any* knowledge of Chemistry and Metallurgy, or of the characteristics of metals; if he had read any of the Scentific Journals before referred to; if he had examined the specification of my patent, which was published in full in a Scientific Journal at his door, and clearly distinguished Wood's Metal from mixtures such as he "used" in 1838 and 1839, "under the scientific name of Terra Metallic Compound;" *if* he had even taken pains to compare side by side the physical characters of the two, instead of speaking as at venture and from memory; and if, with these, or any one of these preliminaries, he had been actuated by a spark of fairness and justice, he would not have said that "it *looked as much like it as possible*," nor have *intimated* as strongly "as possible" that it was the same or a similar mercurial compound. *He* would have squarely and truthfully pointed out the difference for the information of his readers: and then in reply to the many dentists who, he says, have written him "to know what we thought of Wood's plastic filling," if he disliked it and wished to influence them against it, and had nothing else to oppose; he might have told them, as he does: "We do not find any use for plastic filling in *our* practice, *because* we do not use anything but gold, Hill's stopping, Oxichloride of Zinc, and tin: if *we* required anything else in *our* practice, we would use the old-fashioned amalgam, or its modification known as Townsends," &c.; trusting to the "great influence" of his *example*! (The Plastic Metallic Filling will get along, "without our influence.")

Dr. White does not allude to the patent, which would at once have reminded intelligent readers that the material is substantially different from that with which he would identify it, or no patent could have been obtained. He does not *say* it contains mercury, he dare not say that, though it is easy to determine if it did, yet he conveys, and evidently seeks to convey this impression.

It is to be regretted that a publication, which, although it be but an Advertisment Carrier for the goods and material which its proprietor manufactures and offers for sale, is still widely circulated and capable of usefulness, should be *prostituted*, whether at the behest of personal pique or interest, to the humiliating business of not merely withholding important information from the profession, but studiously misleading its readers on subjects in regard to which they are most desirous of being informed.

THE

DENTAL CIRCULAR

BOSTON MEDICAL
AND
FEB 1 1895
LIBRARY ASS'N.

EXAMINER.

EDITED BY

B. WOOD, M. D.,

DENTIST.

Vol. I. ALBANY, N. Y., JANUARY, 1865. No. 1.

QUARTERLY,—$1 a Year in Advance.

ALBANY:
J. MUNSELL, PRINTER.
1865.

THE

DENTAL CIRCULAR AND EXAMINER.

Vol. I. JANUARY, 1865. No. 1.

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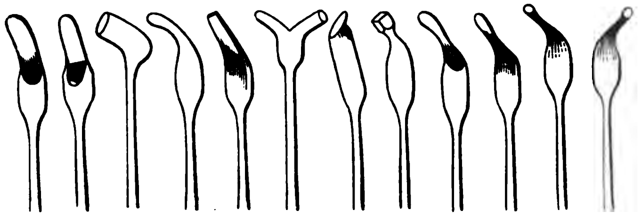
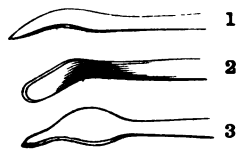
The present Number of the Circular and Examiner will be sent to any one requesting a copy for examination. The work will continue to be sent this year, *free* of *charge* to those, and those only, who have, or may procure, regular licenses under the new patent, and who give due notice of their wish to have it continued. In no other instance will it be continued, except upon receipt of the subscription. Our friends will please bear this in mind, and send on their requests or orders as soon as practicable, that we may know how many copies to print, as the edition will be limited to the demand.

INSTRUMENTS
For USING the PLASTIC METALLIC FILLING.



The cuts exhibit the form and size of the points, bulbs, and shafts of these instruments. They are made with round steel handles, like the ordinary excavators. Nos. 1, 2, 9 and 10 are flat-bladed; No. 4, cylindrical, (point square instead of round); Nos. 11 and 12 are right and left, double curved, for the bottom of deep side cavities. The forms of the others are represented, INDICATING THEIR USES.



SCRAPERS.—No. 1. Triangular, three cutting edges, the convex edge for scalloping out coronal plugs, at the fossæ, and trimming anterior lateral surfaces, and the concave edges for trimming posterior surfaces, and for rounding off cusps, &c. No. 2. Flat, square edged, for approximal surfaces and coronal fossæ. No. 3. Square edged, with double convex and concave cutting edges, for shaping and finishing all sides of cusps and crowns built out with the Filling.

The Pluggers are arranged in sets of eight and twelve, at $3 and $4.50 respectively. Scrapers at the same rate.

For fuller description of these Instruments, manner of using them, &c., see Dr. B. WOOD'S DENTAL CIRCULAR for May 1864.

TO MANUFACTURERS, DEALERS AND WORKERS IN METALS.

NEW FUSIBLE METAL AND IMPROVED ALLOYS; For Solders; Cements; Plugs for Safety Valves; Thermoscopic Gauges; Light Castings; Moulds; Dies; Medallions; Copying Delicate Forms, Natural or Artificial; Hermetic Sealing; Silvering Mirrors; Electrotype and Stereotype Purposes, &c., &c.

Combining Valuable Qaalities possessed by no other class of Alloys.

SECURED BY LETTERS PATENT, MARCH, 20, 1860.

The Patent embraces the class of Fusible Alloys produced by combining *Cadmium* with certain metals, in the proportions set forth in the specification, and secures to the undersigned the use of Cadmium in these combinations and proportions for the production of said alloys.

The most fusible form melts at about 150° Fahr., or some 50° or 60° below the melting point of the most fusible alloys hitherto known; it possesses other advantages over them, in hardness, tenacity, &c. This form of metal is rather brittle, being similar in this particular to the old "fusible metal."

Another form is remarkable for its great tenacity, in connection with a very low melting point; it melts at about 280°. It is similar in tenacity and flexibility to the finest and most easily melted tin solder, but harder and much more fusible. It is stronger than the Bismuth solders that melt at as low a heat, and cheaper.

State, County, Town and Laboratory rights to make and use the Patent Fusible Alloys, with directions for modifications of the formulæ for special results, are for sale on liberal terms.

Samples sufficient for testing the qualities of the alloys, furnished at the cost of manufacture, upon payment of charges.

Address DR. B. WOOD,
Albany, N. Y.

DR. B. WOOD'S

PLASTIC METALLIC FILLING,

Patented March 20, 1860 and Sept. 4, 1864.

Manufactured by the Proprietor and Patentee, Albany, N. Y.

THIS MATERIAL is fully conceded by Dentists skilled in its use, to be superior to any other but gold for filling teeth, while it can be successfully employed in many cases where gold cannot.

ALL LICENSES to use the Material are issued from this office, Albany, N. Y., and all take date from the date of the new Patent, Sept. 4, 1864. TERMS: For 5 years from that date, $8: for 10 years, $15: for 17 years (full term,) $25. Licenses for limited periods apply towards an extension, and for the full term, towards a Manufacturing license.

Grants under the old patent extend for 14 years from the 20th of March, 1860, and may be applied towards a license under the new patent, for the full term or for 10 years, upon payment for the residue of the time.

LICENSES are not issued for a less term than five years from the 4th of Sept. 1864. But for a fee of $2 a Right may be had to use the material for trial for a limited period not to exceed One Year from that date. This will secure the refusal of a License, and can be applied thereon, at any time within the year; but it does not constitute the holder a LICENSEE, and he must pay the same fee and get a Receipt therefor upon the purchase of every ingot or part of an ingot, until he shall have obtained a regular license. Receipts, endorsed by the Patentee, are furnished to agents for this purpose, each being good for $2 towards a license, as above. This proposition will be open only for the present year, at farthest, (or until September, 1865), after which regular Licenses will be required in all cases.

Those who purchased in good faith under the conditions as heretofore advertised, and who wish further trial, or desire to take out their licenses gradually, should at once avail themselves of these ready and easy terms. The time during which the use of the material was allowed without a license, expired, agreeable to public announcement, the first of Nov., 1864. *The using of it since that date, without right or license, is an infringement on the Patent, and leaves no alternative but prosecution, unless the parties secure their licenses before action is brought.*

THE PLASTIC METALLIC FILLING is formed into thin ingots about 1-20 of an inch in thickness, each weighing 3-4 of an ounce, avoir., and stamped with the name of the Patentee and the dates of the patents. In view of the adoption of the license system, the old price has been maintained notwithstanding the greatly advanced rates of everything. But should specie reach above 200 with a prospect of permanency, the price will be advanced in proportion.

PRESENT PRICE OF MATERIAL: To Licensees $2 an ingot. To non-Licensees $4 an ingot, or $3 for half an ingot, with a Right to Use it for trial not exceeding one year. Postage, 6 cts.

PLUGGERS FOR USING THE FILLING, in sets of 8 and 12, steel handles, at $3, and $4.50 respectively. Postage 24 and 36 cts. Scrapers for finishing, (set of 3,) at the same rates.

For Licenses, Material, &c., Address

Dr. B. WOOD, Dentist,
Albany, N. Y.

January, 1865

N. B. The Profession are warned against purchasing of unauthorized parties, thus becoming equally liable with them. Any one not provided with Receipts endorsed by the Patentee, or offering to sell material different from the above terms or without the proper patent stamp, may be known as unauthorized.

THE

DENTAL CIRCULAR

EXAMINER.

BOSTON MEDICAL AND LIBRARY ASS'N.
FEB 1 1895

EDITED BY

B. WOOD, M. D.,

DENTIST.

Vol. I. ALBANY, N. Y., APRIL, 1865. No. 2.

QUARTERLY,—$1 a Year in Advance.

ALBANY:
J. MUNSELL, PRINTER.
1865.

THE
DENTAL CIRCULAR AND EXAMINER.

Vol. I. APRIL. 1865. No. 2.

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THE CIRCULAR AND EXAMINER.

Two numbers of this Journal are already before the Profession; it needs nothing further by way of prospectus.

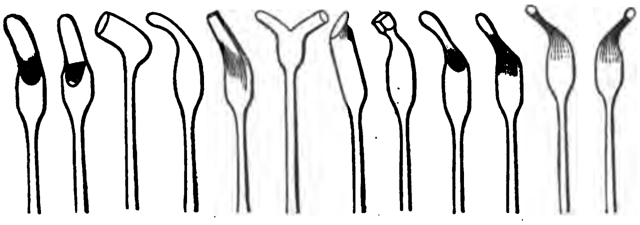
It does not come in a spirit of competition or antagonism to others, believing all are useful and needed in their peculiar spheres. But there are differet modes of thinking and different means of attaining the same end, so far as that end affects the common good. We shall conduct the Journal in our own way, and according to our own views of what is needed. That undue prominence may not be given to any class of subjects or ideas, we invite communications from all upon subjects and in a manner which each may esteem best.

To those especially who use the "Filling," and desire to use it with credit and success, we hope to make the Journal worth a hundred fold its cost. Those also, who oppose the Material or the Patent should take the work, that they may conduct their opposition understandingly before an intelligent community, and not unwittingly bring discredit on themselves and the Profession to which they belong, as some are doing. It is designed to benefit both friend and foe. It has no ill will towards any individual; and if it be intolerant towards egregious faults, it is only the more effectually to detach them from the individuals they afflict. We trust any causeless antipathies or jealousies fomented in certain quarters will be dismissed.

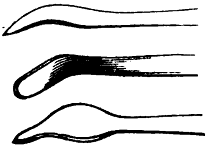
The Journal will hereafter be sent only to our regular Licensees, and to actual subscribers, the edition being limited to this demand. But the first No., of which we have an extra supply, may be obtained separately at 25 cents a copy.

PLUGGERS
For USING the PLASTIC METALLIC FILLING.

PATENTED FEB. 28, 1865.



The cuts exhibit the form and size of the points, bulbs, and shafts of these instruments. They are made with round steel handles, like the ordinary excavators. Nos. 1, 2, 9 and 10 are flat-bladed; No. 4, cylindrical, (point square instead of round); Nos. 11 and 12 are right and left, double curved, for the bottom of deep side cavities. The forms of the others are represented, INDICATING THEIR USES.



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The Pluggers are arranged in sets of eight and twelve, at $3 and $4.50 respectively. Scrapers at the same rate.

* * *

TO MANUFACTURERS, DEALERS AND WORKERS IN METALS.

NEW FUSIBLE METAL AND IMPROVED ALLOYS; For Solders; Cements; Plugs for Safety Valves; Thermoscopic Gauges; Light Castings; Moulds; Dies; Medallions; Copying Delicate Forms, Natural or Artificial; Hermetic Sealing; Silvering Mirrors; Electrotype and Stereotype Purposes, &c., &c.

Combining Valuable Qualities possessed by no other class of Alloys.

SECURED BY LETTERS PATENT, MARCH, 20, 1860.

The Patent embraces the class of Fusible Alloys produced by combining *Cadmium* with certain metals, in the proportions set forth in the specification, and secures to the undersigned the use of Cadmium in these combinations and proportions for the production of said alloys.

The most fusible form melts at about 150° Fahr., or some 50° or 60° below the melting point of the most fusible alloys hitherto known; it possesses other advantages over them, in hardness, tenacity, &c. This form of metal is rather brittle, being similar in this particular to the old "fusible metal."

Another form is remarkable for its great tenacity, in connection with a very low melting point; it melts at about 280°. It is similar in tenacity and flexibility to the finest and most easily melted tin solder, but harder and much more fusible. It is stronger than the Bismuth solders that melt at as low a heat, and cheaper.

State, County, Town and Laboratory rights to make and use the Patent Fusible Alloys, with directions for modifications of the formulæ for special results, are for sale on liberal terms.

Samples sufficient for testing the qualities of the alloys, furnished at the cost of manufacture, upon payment of charges.

Address DR. B. WOOD,
Albany, N. Y.

DR. B. WOOD'S

PLASTIC METALLIC FILLING.

Improvement Patented Sept. 4, 1864.

Free Use for trial until 4th of September, 1865.

Price fixed at $3 an Ingot.

All Licenses to use the Material are issued from this office, Albany, N. Y., and all take date from the date of the Patent, Sept. 4, 1864. Terms: For 5 years from that date, $8: for 10 years, $15: for 17 years (full term,) $25. Licenses for limited periods apply in part payment towards an extension.

For reasons stated in the *Dental Circular* and *Examiner* for April, page 62, the free use of the Filling is extended to all for trial until the 4th of Sept. 1865, upon the condition and understanding that those who thereafter continue its use, procure by that time a license for not less than five years as above. No deduction made for the year preceding, and in cases of prosecution, infringers will be held for the full period. Infringers in the manufacture and sale, and those using their infringments, will be proceeded against at once, wherever found.

The Plastic Metallic Filling is formed into thin ingots of ¼ oz. weight, avoir., each stamped with the patent mark.

Price, $3 an ingot,—without Receipts or credits for any part of the amount towards licenses. Those, however, who have purchased licenses, for five years under the late patent, or may procure them by the 4th of Sept. 1865, will be furnished from this office during the remainder of that term at a reduction of one-third, or at $2 an ingot.

Dentists wishing to pay the license-fee by instalments, and in the meantime obtain material at said reduced rates, can do so until the above date, upon the conditions advertised in the January No. of the *Dental Circular and Examiner*, according to which the sum of $2 will secure a Receipt, or $4 one ingot with a Receipt, which will be good for $2 towards a license until the 4th of September. But hereafter these Receipts will be furnished only from this office—as dealers cannot well attend to it.

Pluggers for Using the Filling, Patented February 28, 1865,

In sets of eight or twelve, steel handles, at $3, and $4.50 a set respectively. Postage 24 and 36 cents.

With Silver and German Silver Bulbs and Points, from $6 to $20, a set, according to style and material.

Rights to manufacture and sell these instruments granted on reasonable terms.

For Licenses, Material, and Instruments, Address

Dr. B. WOOD, Dentist,
Albany, N. Y.

April, 1865.

Agencies will be established in different localities wherever reliable parties are found who will abide strictly by the conditions.

The Material may be procured for the present of the following persons;

New York; J. D. Chevalier & Sons.
" A. Jones.
Albany, N. Y.: D. DeGraff, 53 S. Pearl St.
" " F. H. Griswold.
Rochester, N. Y.: Davis & Brother.
Utica, N. Y.: Dr. A. N. Priest.
" " J. P. Bradish, (Traveling.)
Geneva, N. Y.: Dr. W. F. Edington.
Watertown, N. Y.: Dr. S. M. Robinson.
Lansing, Mich.: Dr. J. S. Wood.

Boston: Codman & Shurtleff.
" J. D. Chevalier & Sons.
Philadelphia: Neall, McCurdy & Neall.
" Reubencame & Stockton.
" Johnson & Lund.
Cincinnati: J. S. Walter & Co.
" James Leslie.
Chicago: E. F. Wilson.
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St. Louis, Mo.: Dr. C. W. Spalding.

Poughkeepsie: G. J. Germond, Traveling Agent.

Licensees who will give instruction in the use of the Filling and adhere to the terms of sale, may obtain authority to act as agents.

THE

DENTAL CIRCULAR

BOSTON MEDICAL
AND
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EXAMINER.

EDITED BY

B. WOOD, M. D.,

DENTIST.

Vol. I. ALBANY, N. Y., JULY, 1865. No. 3.

QUARTERLY,—$1 a Year in Advance.

ALBANY:
J. MUNSELL, PRINTER.
1865.

THE
DENTAL CIRCULAR AND EXAMINER.

Vol. I. JULY, 1865. No. 3.

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BUSINESS NOTICES.

UNFOUNDED RUMORS.—Let none be misled by rumors or conjectures afloat as to dispensing with licenses, or anything else different from what is advertised. *Licenses are not to be dispensed with under any circumstances.*

A PROPOSITION.—Having once mentioned that I contemplated, upon a certain contingency, an abatement of the fee for license to use the Filling after the first five years; and that no misunderstanding may arise on that point, I will here make it public in form of a proposition, viz.:—That if there shall be to the number of five hundred Licensees for five years, then no further *fee* will be called for from them, beyond the eight dollars paid for that period, except the nominal fee of one dollar necessary to cover the cost of issuing the extension and to render the writings valid by acknowledgment of a legal consideration.—I will couple this with another: That whenever there are five hundred subscribers for manufacturing Rights, I will commence issuing such rights at $25 each, allowing the amount actually paid for licenses to apply on the same; provided, of course, that, in cases of premiums given (under a former temporary offer) in material or instruments, their value at the time be deducted from the amount so applied.

A Right to Manufacture will secure full and exact information of any improvements, and the best modes of refining and preparing the ingredients; also the right to make and use the class of alloys embraced in my former patent.

In this way I propose, for a moderate remuneration, to place the matter in the hands of that portion of the profession most likely to make good use of it.

THE PRESENT VOLUME of the Journal is sent free only to our regular Licensees, or those obtaining licenses (for not less than five years) by the 4th of September, 1865. In no other case is it sent except upon receipt of the subscription price; and all subscribers furnished from the first number. We do not wish subscriptions beyond this year, as we may not continue the work.

THE LIST OF LICENSEES (third page cover) includes only those who have licenses (under the new patent) for not less than five years. Receipts for Rights of use for Trial, must be surrendered by the 4th of September, 1865, in order to be accepted in payment towards licenses.

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“ McCoy, M., Boonville, Mo.
“ Mc Donnels, G. B., Girard, Pa.

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“ Nichols, G. W., Davenport, Iowa.
“ Northrop, A. L., New York City.
“ Ohio College of Dental Sugery.
“ Overholser, D. L., Lockport, Ill.
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“ Pierce, C. N., Philadelphia, Pa.
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Dr. B. WOOD, Dentist,
Albany, N. Y.

July, 1865

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New York: J. D. Chevalier & Sons.
" A. Jones.
Albany: D. DeGraff, 53 S. Pearl St.
" F. H. Griswold, 11 Beaver St.
Rochester, N. Y.: Davis & Brother.
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" Johnson & Lund.
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" James Leslie.
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THE

DENTAL CIRCULAR

EXAMINER.

BOSTON MEDICAL AND LIBRARY ASS'N.
FEB 1 1896

EDITED BY

B. WOOD, M. D.,

DENTIST.

Vol. I. ALBANY, N. Y., OCTOBER, 1865. No. 4.

QUARTERLY,—$1 a Year in Advance.

ALBANY:
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THE DENTAL EXAMINER.

VOLUME 2.

The First No. of the Second Vol. will probably not be issued before the First of July next, and may be postponed until the commencement of the New Year. Meantime it is hoped that those who wish to become subscribers will send in their names and residence. We do not want any one to send the subscription price until the receipt of the first No., but it is important to know how many copies will be needed to start with. The appearance of the first number will be a guaranty that the rest will follow in order.

SUBSCRIPTIONS FOR THE DENTAL EXAMINER, VOL. 2.

At $1, per Year: — Payable on Receipt of the 1st No.

Names.	Residence.

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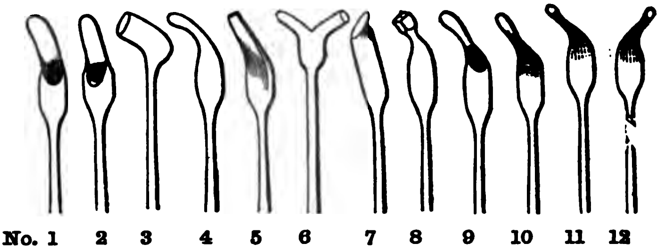

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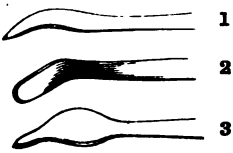

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Address
Dr. B. WOOD, Dentist,
Albany, N. Y.

NOTICE.

Letters patent of the United States having been issued to me, Feb. 28, 1865, for an Improvement in Instruments for Filling teeth, as described in the specification, all persons will hereafter be held amenable in law for infringement upon the same in any of the claims set forth.

Not having at first stamped these instruments with the patent mark, the law required that notice be given to infringers before they could be stopped. Of course all were free to manufacture them before the patent was allowed and while the application was pending, but since then are liable to prosecution upon notice, as above. The principal makers and dealers have already been notified, and the attention of others is directed to this.

They are now stamped before offered for sale, and are required to be by those who may obtain the right to make and sell them. This will enable purchasers to discriminate, and also serve to protect them from the imposition of instruments improperly made, and therefore comparatively useless.

All persons are warned against hereafter purchasing and using these instruments if not stamped "WOOD'S PATENT—Feb. 28, '65." But this is not to restrict any from using what they have heretofore purchased.

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This Material is not only considered the best yet known for filling teeth except gold, but invaluable for repairing rubber plate work, and various other uses about the office and laboratory:—being absolutely free from mercury, it can be used advantageously in connection with gold and silver, without discoloration or injury to them.

The FILLING will hereafter be sold by *Troy weight*, instead of avoirdupois, put up in small ingots or bars weighing ¾ of an ounce Troy (equal to ¾ oz. Avoir., less the postage), and will accordingly be mailed *free of postage* agreeable to former notice.

Price, $3 an ingot, with the right of use for trial and the privilege of a license on the above terms. Those, who have purchased licenses for five years under this patent, or may procure them by the 1st of Jan. 1866, furnished at a reduction of one-third, or at $2. an ingot. Take notice that each ingot is stamped with the name of the Patentee, and date of the patent.

PLUGGERS for USING the FILLING, PATENTED February 28, 1865,

In sets of eight or twelve, steel handles, at $3, and $4.50 a set respectively. Postage 24 and 36 cents.

With Silver and German Silver Bulbs and Points, from $6 to $20, a set, according to style and material.

Rights to manufacture and sell these instruments granted on reasonable terms.

For Licenses, Material, and Instruments, Address

Dr. B. WOOD, Dentist,
Albany, N. Y.

Oct., 1865.

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1gal
209

1gal
209